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AUGUST 15, 1931.

Vol. CXV.

Α

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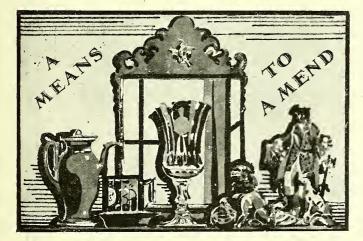
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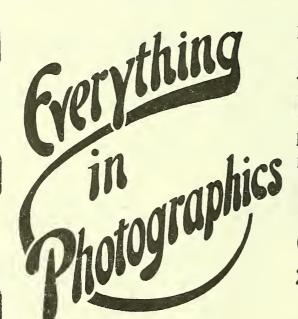
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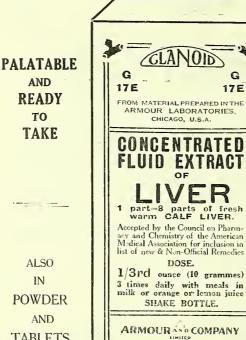
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Maw's Page



"It's an ill wind"

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S. Maw, Son & Sons, Ltd.,
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and Barnet.



A NEW LINE

"Aerofume" Deodoriser

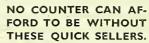
These dainty containers are hung in bedroom, bathroom, office, nursery, etc., or can be carried in handbag, satchel, etc. Sold complete with "AEROFUME" charged pad, in cases of various artistic colours to harmonise with modern furnishings. Packed in attractively designed display cartons containing one dozen assorted colours. Sells on sight wherever shown.

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CARTONS

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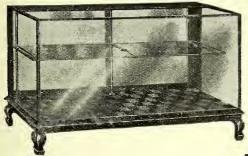
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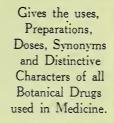
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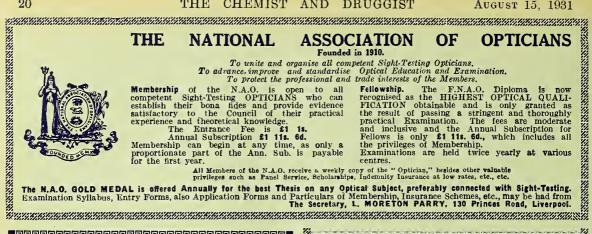
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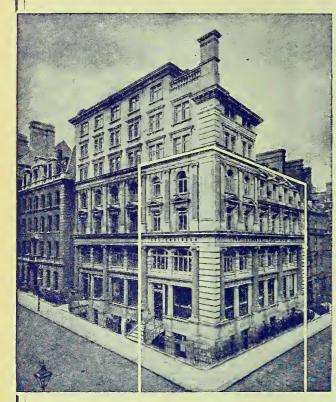
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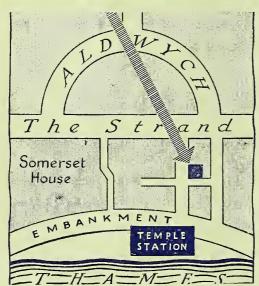
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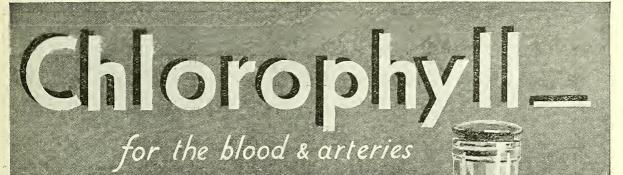
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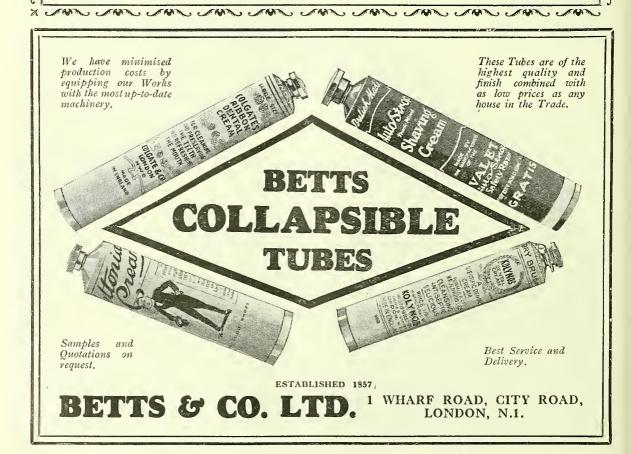
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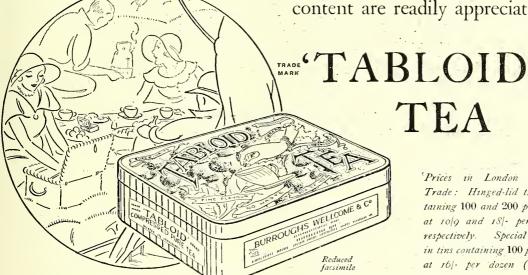
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# News of the Week

### Therapeutic Substances Regulations, 1931

The text of the Therapeutic Substances Regulations, 1931, dated July 25, has been issued (price 11d.) by the Stationery Office. The text is practically identical with that of the draft Regulations summarised in the C. & D., of June 13 (p. 682) and June 20 (p. 707).

### The British Association

The fact that the centenary meeting of the British Association, to be held in London on September 23-30, coincides with the Faraday celebrations at the Royal Institution has imparted a special character to the programme of the chemistry section of the Association. Sir Harold Hartley, president of the chemistry section, will make Faraday the subject of his address, and among the subjects for discussion is "The Influence of the Medium on the Properties of Electrolytes." Other topics in this section are "The Chemistry of the Vitamins and Related Substances" and "The Structure of Simple Molecules." Special exhibits will be on view during the meeting.

### Inquests

The Wimbledon coroner recorded a verdict of "Death from natural causes" at an inquiry held recently concerning the death of Mr. David Parry, chemist and druggist, Arthur Road, who died somewhat suddenly after mixing a dose of medicine for himself. Medical evidence showed that heart trouble was present.

At Leyton, on August 5, a verdict of "Accidental death" was recorded on an inquest on the body of Miss Ruth Laver. It was stated in evidence that Miss Laver had taken aspirin for neuritis, that about a month previously she had been very ill after taking too many

aspirin tablets, but that she continued to take them and finally took an overdose.

An inquest was held at Camberley, on August 11, on the body of Lieutcnant H. G. Chevis, who died after eating partridge. Dr. J. H. Ryffel, Home Office analyst, deposed that he had examined the stomach contents and various articles from the deceased's house. He found strychnine in dripping and in gravy, and concluded that the total quantity associated with the partridges mentioned in the case amounted to at least 2 gr. The strychnine had been very slowly absorbed, and the deceased died fourteen hours after eating the food. An open verdict was returned.

A verdict that death was due to an overdose of chloral hydrate, taken by misadventure, was returned at an inquest at Oxford, on August 12, on the body of Mr. Mark Sopote, University tutor, who died in the Radcliffe Infirmary. Mr. Samuel Sopote stated that his father, who suffered from cancer, asked him to purchase chloral hydrate to relieve his pain, and he obtained some from an Oxford chemist. "Having some chemical knowledge," he continued, "I mixed the drug myself from the directions in the British Pharmacopæia. Although I made the dose rather less than was required, to be on the safe side, I gave strict instructions to my father how much he was to take."

### Sheffield

Neither Mr. H. G. Williams nor his friends suffered injury as the result of the motor-car accident which occurred on the Baslow Road recently.

It is not generally known that "E 1850 W" over the door of Barclays Bank at the corner of Cemetery Road refers to E. Wilson, chemist, who built the premises in 1850.

### Miscellaneous

Examination successes.—In the recent Pharmaceutical Chemist Qualifying examination of the Pharmaceutical Society of Great Britain, all the five candidates who had studied at the Leicester College of Technology were successful; their names are Miss A. Kay, Messrs. J. W. Hansen, K. Pynegar, J. Smith and W. Widdowson.

In the courts.—At Romford, recently, Frank Cakebread, grocer, High Street, was summoned for having sold powdered cinnamon containing 15 per cent. of sand. Dr. B. Dyer, public analyst for Essex, considered that some of the siftings separated in powdering had been picked up by mistake and returned to the bulk. The case was dismissed on payment of £5 5s. costs.—At Lambeth Police Court, London, recently, William Charles Savage, commercial traveller, was bound over on a charge of stealing the sum of £2 belonging to his employers, P. H. Galloway, Ltd., manufacturing chemists, Waiworth Road, S.E.—At Leeds Police Court, on August 12, Mr. S. B. Gillatt, chemist and druggist, Vicar Lane, was fined £3, with costs, for having sold hydrocyanic acid to a man who signed the poison-book but gave a false address. It was stated that the man subsequently attempted to commit suicide. The defence was that the man was taken to be an old customer.

### Scottish Notes

### **Brevities**

Councillor Alexander Crawford, chemist and druggist, who was returned last year for the Shettleston division of Glasgow Town Council, has announced his retirement from the Council.

The reclaiming department of Castle Mills Works, Fountainbridge, Edinburgh (North British Rubber Co., Ltd.) was the scene of a fire recently. The damage has been estimated at  $\pounds 20,000$ .

Mr. James McBain, chemist and druggist, who has been manager for Boots, Ltd., at their branch in High Street, Arbroath, for nearly twenty years, has received a gold watch and a cheque from the directors on retiring on pension.

At the recent examination of the Worshipful Company of Spectacle Makers, Mr. W. Westland, chemist and druggist, 97 Queen Street, Alva, passed the diploma examination and also the supplemental examination for the recognition of abnormal ocular conditions and eye diseases.

### Irish Notes

### Pharmaceutical Society of Ireland

The following are the candidates successful at the recent examination for Assistants to Pharmaceutical Chemists, the names being arranged in order of merit, and those whose names are in brackets having received equal marks:—Agnes Hogan, (Patricia C. Dolan, M. J. Carroll), (W. P. C. Sayers, Augustine H. Devlin), Thomas Quigley, William Young, G. J. Kirwan. Eleven candidates were rejected.

### **Brevities**

Considerable damage was caused by a fire which occurred in the pharmacy of Mr. J. A. Donaghy, Ph.C., Broadway, Ballymena, recently.

The death has taken place at Belfast of Dr. William Burns, a dispensary medical officer, who was formerly apothecary to the Belfast Board of Guardians. Dr. Burns took the Scottish triple qualification in 1901.

Mr. M. Mahony, Ph.C., High Street, Kilkenny, who was in the motor-cycling races run by the North of Ireland Motor-Cycling Club, recently secured the second place in the 75-miles championship, and in the five-miles open scratch race he won the first prize. In the 10-miles open handicap (unlimited) Mr. Mahony took the second place.

# Sporting Events

PLAYING in a Bradford and District cricket competition, a team representing Brook, Parker & Co., Ltd., manufacturing chemists, recently accomplished a remarkable performance. They had as opposition Wayman & Co. (Halifax), and the opening batsmen for this club scored twenty-one runs before being separated. At this stage the bowlers dismissed the whole of the nine batsmen for the addition of a single run, the final score being only twenty-two. During this period C. Carter secured five wickets for no runs and L. Robinson three for one, and the chemists eventually won the match with seven wickets to spare.

At a recent meeting of the York Chemists' Association, Mr. Arthur\_Humphreys (Bleasdale, Ltd., manufacturing

chemists, York), presented a handsome cup to be competed for annually by the members. In making the presentation, Mr. Humph-reys expressed the desire that chemists in the North and East Ridings should be admitted into the membership of the Association at a reduced fee, would thus be and eligible to compete for the cup. He also expressed a wish that the first competition should be tlayed over the course of the Fulford Golf Club, of which he is a life member, early



MR. A. HUMPHREYS

in October this year.

Mr. W. Dewhurst, in proposing a vote of thanks to the donor, said that any golf club would be proud to possess such a handsome trophy. Mr. J. A. Lupton, in seconding, said that as the oldest chemist present and the oldest golfer in the Association he thanked Mr. Humphreys for his handsome gift, and hoped to have a knock not "at" but "for" it. Mr. T. C. Atkinson and Mr. O. Colbert (president of the Association) supported the resolution. The York Chemists' Association will be glad to receive applications from chemists in the North or East Riding for membership as country members of the Association.

# Business Changes

 $\rm Mr.\ R.\ A.\ Cottman,\ chemist\ and\ druggist,\ has\ opened\ new\ premises\ in\ South\ Street,\ Dorchester.$ 

George Greenwood & Son, chemists, have acquired the business of the late Mr. W. R. Selleck, chemist and druggist, 136 High Street, Stourbridge.

Mr. W. M. Stebbing, chemist and druggist, has acquired the business of Mr. Alexander Tweedle, chemist and druggist, 121 Main Street, Grangepans:

The address of Coates & Cooper, Ltd., medical and pharmaceutical products, on and after September 21 will be 94 Clerkenwell Road, London, E.C.1. Telephone: Clerkenwell 4100.

MR. PERCY V. SHARP has purchased from the liquidator the goodwill of the firm of Burkett, Sharp & Co., Ltd., and, with Mr. J. R. Roper, will carry on the business under the name of Burkett, Sharp & Co., 27 Mincing Lane, London, E.C.3.

SETTING A GOOD EXAMPLE.—"I am happy to say that the stationery trade is now practically free from connection with coupon schemes."—The general secretary of the Stationers' Association in "The Times."

### New Zealand News

TRADE CONDITIONS.—In common with other parts of the world, New Zealand chemists are feeling the effects of abnormal trade conditions. With falling sales and the necessity of reducing costs, many chemists have commenced to manufacture their own galenicals. This may prove a blessing in disguise, for besides saving money on their purchases, they have been forced to employ pharmaceutical knowledge which has shown evidence of stagnation.

CHEMISTS' SOCIAL ACTIVITIES.—New Zealand chemists are devoting more time to sport and social functions. Recently the Auckland retailers played a friendly game of bowls against the Auckland wholesalers. The former were successful in winning a handsome cup. At tennis a keenly contested tournament resulted in the wholesalers defeating the retailers and thereby holding a cup presented by Mr. Keys. Christchurch holds an annual tennis tournament between the doctors and the chemists. This year the doctors were successful.

Chemists' Ball.—The Auckland Combined Chemists held their annual ball at the Dixieland Cabaret on September 18, over 200 couples being present. The decorations were very tasteful, bowls of marigolds and freesias being on the tables surrounding the dance floor while a central revolving light and lanterns gave brilliance to the scene. The Dixieland Orchestra contributed much to a thoroughly enjoyable function.

STRYCHNINE POISONING CASE.—A case of strychnine poisoning which has excited considerable public interest is reported from Auckland. The accused, A. T. Munn, was charged with poisoning his wife, and the evidence showed that he had purchased strychnine from a local chemist some months previously for the alleged purpose of poisoning rats. Some time later the wife was taken ill, but the trouble was diagnosed as blood pressure. At a subsequent visit, however, the doctor's suspicions were aroused by the characteristic symptoms of strychnine poisoning, and after the patient's death he obtained samples of the different fluids present in the sickroom. A preliminary analysis indicated the presence of strychnine. After a long trial involving considerable technical evidence, the accused was sentenced to death.

# Topical Reflections

### By Xrayser

### **Botany Failures**

in the Preliminary Scientific examination of the Pharmaceutical Society have repeatedly had attention directed to them because of their apparently excessive number, but the position in respect of such failures seems to grow worse instead of better. The figures you reported last week (p. 182) fully justified Mr. Marns in referring to the subject, and it appears to me just a little bit odd that no one present at the Council meeting was able to throw much light upon the matter. Mr. Marns asked for an assurance from the chairman of the Education Committee (Mr. Peck) that something should be done to improve matters, but Mr. Peck threw the responsibility upon another committee. On the face of it the examiners appear to do pretty well what they please, without the Council knowing what they are doing, and there seems to be a strong suspicion that the botany which many pharmaceutical students are being taught is not the same subject as that in which they are subsequently examined. Mr. Jack was severe in his description of the botany taught in ladies' schools as being of the "kitchen variety," and Mr. Skinner lent support to the idea that there is divergence between the teaching and the examinations. Surely, then, it is time the Council took action to ensure that teachers and examiners shall adhere to the official syllabus. This, after all, is the Council's own guide to what is required, and it needs to be interpreted alike by everyone concerned.

### Sheffield Chemists,

we are told in your news columns (p. 172), have a feeling that there are too many pharmaceutical organisations to work effectively; and, as I heard of a similar feeling existing in other parts of the country, it occurs to me that this is another subject worth looking into. So far as central organisations are concerned, I do not think we are overweighted; but when the activities of local associations are supplemented by those of pharmaceutical committees and branches of both the Pharmaceutical Society and the Retail Pharmacists' Union, the tendency is for chemists to take a fading interest in all of them, so that the effectiveness of the work done is certainly hindered. Meanwhile chemists' assistants are not organised at all, save in so far as they are permitted to become members of the Pharmaceutical Society when qualified, and

in some districts to attend meetings of the local associations. There seems to be no getting away from the fact that the local association is far and away the best organisation for local purposes, and for linking up all the other organisations connected with the retail drug trade, particularly if the constitution of the association is such as will admit all registered chemists in the town or district as full members, with an arrangement for admission in some capacity of apprentices and unqualified assistants. Members who are also members of the Pharmaceutical Society can always form a section representing a branch of the Society, and the same applies to those members who are also members of the R.P.U. But the association should most decidedly remain the organisation which represents the entire pharmaceutical community in the area, and it ought in turn to have the support of everyone connected with the practice of pharmacy in that area.

### **Grocers' Support**

is being lent to the Pharmacy and Poisons Bill, and the latest manifestation of that is of an illuminating character. You report that the Scottish Federation of Grocers' Associations is asking members of Parliament to vote for the Bill (p. 173), and it is interesting to note the reasons submitted for making the request. It will be observed that the implied demand is for grocers to be permitted to sell effective disinfectants, sanitary commodities, agricultural preparations and articles, such as ammonia, for domestic cleaning purposes. Not the slightest suggestion is made of any relaxation of the restrictions upon the sale of proprietary or other medicines containing poison, and it does not appear that we are likely to have to meet a serious demand for such relaxation, provided we are reasonable in our views regarding the articles that grocers really want to sell. They are out to oblige their customers, and so meet a public want which we ought to have laid ourselves out to meet long ago, and it is to the alleged public demand for greater facilities in obtaining certain supplies that the Home Secretary is endeavouring to satisfy. His recent statement (C. & D., July 11, p. 51) should have engaged the serious attention of all your readers. Incidentally, I am surprised that no reference to it appears in your report of the latest meeting of the Pharmaceutical Council, but, presumably, any discussion on the subject would be taken in private.

# Legal Reports

An Incomplete Register.—At Marylebone Police Court, London, on August 5, Mr. C. Courts Michie, chemist and druggist, Kentish Town Road, was summoned for failing to enter in a register kept for the purpose the receipt on March 25, from J. F. Macfarlan & Co., of 4 oz. of morphine hydrochloride and I oz. of morphine sulphate; on April 10 of six tubes of \( \frac{1}{4} \) gr. morphine sulphate tabloids from Burroughs Wellcome & Co.; on May 13 of 1 oz. of cocaine hydrochloride from John Bell, Hills & Lucas, Ltd.; on May 19 of twelve tubes of ½-gr. tabloids of morphine sulphate, and on June I of another twelve tubes of similar tabloids, both from Burroughs Wellcome & Co. Mr. Vincent Evans, the solicitor prosecuting, said that an inspector found there were also a number of other occasions on which entries had not been made in the register. The defendant was a chemist in a large way of business and employed a number of qualified and unqualified assistants. Mr. Kirk Glazebrook, defending, urged that defendant's assistants were supposed to keep the records, but apparently they had made certain omissions. A qualified assistant was present to say that he could personally account for what was in the register and what was in the stock. It was carelessness on the part of certain assistants—nothing more. Mr. Michie had carried on business for forty-five years without any complaint. He was naturally a busy man. The magistrate imposed fines amounting to £10, with £5 5s. costs.

# New Companies and Company News

P.C. means Private Company and R.O. Registered Office.

Humphozone Brand Products, Ltd.—To carry on the business of chemists, druggists, etc. Capital £200. Joint managing director: H. Hughes, 158 Clapham Road, S.W.9.

The National Drug Industries, Ltd., registered as a "public" company, with a nominal capital of £400. The objects are to carry on the business of chemists, druggists, drysalters, importers and manufacturers of, and dealers in, pharmaceutical, medicinal, chemical, industrial and other preparations, etc. The directors are: A. J. Harvie, 53 Melbury Court, Kensington, W.8, industrial consultant; A. J. Tibbitt, "Northend," Malbrook Road, Putney, S.W.15, industrial consultant. R.O.: P. & O. House, 14-15 Cockspur Street, S.W.1.

Companies which may be dissolved.—Notice has been given in "The London Gazette" that the names of the undermentioned companies will, unless cause is shown to the contrary, be struck off the register and the companies dissolved three months after July 21: Berks Pharmacy, Ltd.; Cobden Chemical Co., Ltd.; Compagnie Hematogene, Ltd.; North British Chemical Co. (England), Ltd.; Oriental Drug and Supply Co. (Clitheroe), Ltd.; Plytol Chemical Co., Ltd.; Poli-Varn, Ltd.; Silver Drug Supply Co., Ltd.; Standard Anhydrous Anmonia Company of Great Britain, Ltd.; Yorkshire Mineral Water Manufacturers' Association, Ltd.; Zcta Drug Co., Ltd.

### Private Arrangements

W. E. Davies (Arcades), Ltd., 9 Duke Street Arcade and 27 High Street Arcade, Cardiff, dealers in perfumery, etc. A meeting of the creditors was held on August 6 at the Incorporated Accountants' Hall,

Victoria Embankment, London, S.W., when the representatives of Messrs. Woolley, Sanders, Ltd., the largest creditors, presided. A statement of affairs, prepared by Messrs. Alfred Shankland & Son, I.A., Cardiff, was submitted, which disclosed liabilities of £4,042 4s. IId., of which £2,796 12s. was due to the trade. There were loan creditors for £1,095, and the bank were creditors for £150 12s. 11d. The assets consisted of stock in trade at cost, £2,000, estimated to produce £750, and fixtures and fittings, £3,000, estimated to realise £750, making total assets £1,500, from which had to be deducted £1,178 6s. 6d. for preferential claims, leaving net assets of £321 13s. 6d., or a deficiency of £3,720 11s. 5d. The only way (said Mr. Shankland) in which the creditors could hope to receive anything by way of dividend was to allow a moratorium for the company to issue debentures, and that a trustee on behalf of the creditors should control the business. In that way Mr. Davies considered that the creditors should receive something by way of a dividend. Mr. Shankland asked the creditors whether they would be prepared to take debentures for Ios. in the f on their debts to a trustee who would act on behalf of the general body of creditors. The creditors would also receive 5 per cent. interest on their debentures, and, if it were at all possible, out of the future profits of the business Mr. Davies would see that the creditors obtained the other half of the outstanding instalment, which would make a dividend of 20s. in the £. If the company, however, had to go into liquidation, there would not be one penny for the creditors. He suggested that the creditors should agree to take the debentures, to secure themselves as far as possible, and that in future credit should be given on strict monthly terms only. After considering the position at considerable length, Mr. Mulch, who represented the largest creditors and others, said that the creditors as a body would consider the scheme of arrangement, and in the meantime the creditors requested that the company should pass the necessary resolutions for voluntary liquidation, and that the statutory meeting should be held at a later date at the offices of Messrs. Josolyne, Miles, Page & Co., 28 King Stret, Cheapside, and that in the meantime Messrs. Josolyne, Miles, Page & Co. should be given facilities to make any investigation they thought necessary. Mr. Davies agreed to these proposals, and the meeting terminated. The following are creditors: the meeting terminated. The following are creditors:—Brewer Bros., £13; McLay, A., & Co., £39; Lamson Store Service Co., Ltd., £33; British Xylonite Co., Ltd., £92; Parfumerie de Paris, Ltd., £107; Atkinson, J. & E., Ltd., £14; Coty (England), Ltd., £103; Rallet, £10; Earle, Marie, £19; Gladys Cooper Beauty Preparations, Ltd., £21; R. J. Reuter Co., Ltd., £38; Molyneux (J. E. Davies), £20; Veslay, £18; Garrett, Osborne & Co., Ltd., £61; Deback & Harrop, £20; Eugène, Ltd., £10; H. Servanti, Ltd., £11; Scott & Sons, £78; Smith, John, Ltd., £26; Reed Williams, £169; Nagele's, £123; Watts, Mathias, £27; Ellis Bros., £104; Fenton Bros., £22; Wich, F., & Co., £60; James, G. H., £20; Brace, Windle, Blyth & Co., Ltd., £17; Gourdel Vales, £77; Selby, £10; Sydney & Co., £48; A. Bourjoise & Cie., Ltd., £53; D. Morgan, Ltd., £17; R. Hovenden & Sons, Ltd., £61.

### Trust Deed

A. Welsh & Co.—(Alfred W. Coutts, trading as above), chemists and druggists, 65 Parliamentary Road and 103 Stirling Road, Glasgow. Liabilities, £1,401; assets (after deducting preference claims £40 12s. 6d.), £228 11s. 9d. A meeting of creditors was held on 10th inst. when it was decided that the trustee proceed to wind up the estate under Trust Deed. A committee was appointed to confer with the trustee with the view of determining whether or not any action should be taken to have two other parties declared as partners in the debtor's business.

MacLeary, D. H., Glasgow

Macmorran, G. H., Glas-

# Pharmaceutical Society of Great Britain

### Examination Results

Driver, A., Burnley

The following are the results of the examinations held in Edinburgh during July: -

### Pharmaceutical Chemist Qualifying Examination

The following candidates were successful:—Arndell, L.; Bissell, E. S.; McCrone, R. M.; Milne, G. R.; Sinclair, R.; Todd, G. M.; Wilson, A. S. The number of entrants was seventeen, of whom four failed and six were referred.

### Chemist and Druggist Qualifying Examination

|                                                         | No. | PRELIMINARY<br>SCIENTIFIC |        |          |        | CHEMIST AND<br>DRUGGIST<br>QUALIFYING |        |          |        |
|---------------------------------------------------------|-----|---------------------------|--------|----------|--------|---------------------------------------|--------|----------|--------|
|                                                         |     | Absent                    | Failed | Referred | Passed | Absent                                | Failed | Referred | Passed |
| Entered for<br>Prelim. Sc.<br>exam.<br>Referred subject | 285 | 4                         | 122    | 59       | 100    | _                                     | 1      | _        | -      |
| in Prelim.<br>Sc. exam<br>Entered for                   | 45  | 3                         | _      | 13       | 29     | — <sup>-</sup>                        | -      | _        | _      |
| C. and D. exam.<br>Referred subject                     | 255 | -                         | -      | -        | _      | 4                                     | 43     | 57       | 151    |
| in C. and D. exam.                                      | 16  | _                         | _      | _        | _      | _                                     | _      | 5        | 11     |
|                                                         | 601 | 7                         | 122    | 72       | 129    | 4                                     | 43     | 62       | 162    |

Referred in one subject: -Botany, 20; chemistry, 28; physics, 24; pharmacognosy, 7; pharmacy, 35; pharmaceutical chemistry, 14; forensic pharmacy, 6; total, 134.

The following candidates, having satisfied the examiners in the Chemist and Druggist Qualifying examination, have been registered as chemists and drug-

Adam, R. D., Edinburgh Alexander, C. C., Leith Allison, H., Glasgow W. G., Kingskettle Armstrong, N., Newcastleon-Tyne Ashworth, W., Leeds Bain, J., Lybster Bairstow, T., Bingley Barr, J. K., Paisley Agnes M., Bateson. Lytham St. Annes Bell, A. D., Dunfermline Benzie, J. G. G., Aber-Berrington, T. D., Chesterfield Bilton, P. D., Harrogate Bisset, W. J., Brechin Black, R. W., Ambleside Bloch, B., Glasgow Bonney, G., Liverpool Booth, Marjorie, Northallerton Brandreth, F. M., Wilms-

Breingan, D. M., Glasgow Brown, B. H., S. Shields Brown, W., Motherwell Bruce, J. B., St. Colleges

A., Stoke-on-

Buchan,

Trent

Cattanach, A. B. L., Aberdeen Clegg, L., Burnley Cochran, W. O., Kilmar-Coltman, W., Hawick Cooke, A., Walkden Cooper, F. C., Carlisle Cooper, L. C., Manchester Coulthard, G. I., S. Shields Cran, J. R., Dingwall Craven, H., Bradford Crowther, H., Sunderland Denton, F. H., Blyth Dibb, W. R., Castleford Dick, J., Kilmarnock Dickinson, D. R., Sanderland Dixon, F., Pontefract Dixon, K. G., Halifax Dobson, T. A., Southport Donald, D., Barrow-in-Furness Drinnan, R. H., Sheffield

Burnett, L., Kirkcaldy Butler, J., Bolton Cameron, E. D., Edin-

Campbell, Olive C., Glas-

Carroll, G. D., Bishop

burgh

Auckland

gow

Dunbar, Iris S., Rosyth Entwistle, J., Blackburn Ewen, W. B., Aberdeen Ferguson, J., Edinburgh Fletcher, R. R., Bolton Ford, J. G., Newcastle-on-Tyne Fotheringham, R. S., Kirkcaldy Fox, Kathleen M., Bolton Fyfe, A. G., Aberdeen Geddes, W., Buckie Gibson, R., Dundee Goddard, A., Blackpool Gordon, C. G., Glasgow Grahame, Amelia M. A., Liverpool Greenaway, Emily J., Kirkcaldy Hall, A. F., Ryton-on-Tyne Hanson, N., Bradford Harkins, D., Aberdeen Hepburn, F., Edinburgh Hessey, P., Sheffield Hogg, N., Gateshead Hood, J., Paisley Houghton, L. P., Wigan Houghton, R. E., Claytonle-Dale Houston, W. S., Edinburgh Hudson, G. W., Edinburgh Hutchinson, T., Loanhead Hynd, J., Transvaal, S.A. Hyslop, T. C., Rutherglen Isaacson, S. H., Liverpool Johnson, L. C., Aberdeen Johnston, S., Dundee Johnstone, D. B., Stobo, Peebles Jolley, D. L., Chester Jolly, J., Monifieth Jones, I., Liverpool Key, R. B., Workington Kingston, T., Skelton-in-Cleveland Kirby, S. K., Manchester Kirk, H. C., Harrogate Latto, Helen M., Kelty Law, Betty T., Bo'ness Laws, Elizabeth K., Birtlev Lawson, G., Dundee Leah, S., Swinton Leslie, E. S., Scarborough Lévi, B., Leeds Lumb, R. H., Sowerby Bridge Lyall, R. W., Dunfermline McAlpine, A., Paisley McCrum, J. S., Sunderland McDonald, A. W., Inverness Macdonald. Tohnina, Drumchapel Mackechnie, A. A., Inverness

Mackie, Betty H., Kirkin-

Mackinnon, A. C., Dunoon

tilloch

McRae, J., Duns Matheson, P. J. C., Edinburgh Meiklejohn, D., Grangemouth Middleton, K. J., New-castle-on-Tyne Miller, Mary E., Castle Douglas Miller, R. F., Forres Moore, F., Edinburgh Mullineaux, F., Blackpool Neil, D. M., Auchinleck Onslow, R. H., Birmingham Park, A. H., Aberdeen Paterson, G. M., Edin-Pearson, J. T., Todmor-Peel, J. G., Monkseaton Penny, S., Aberdeen Rae, E. H., West Hartlepool Ramsay, J. R., Hamilton Ritchie, C. S., Edinburgh Robertson, Elizabeth M., N. Berwick Robertson, J., Rothes Ross, D. C., Cromarty Routledge, W. M., Blackpool Roylance, J., Bolton Samson, Catherine R. G., Forfar R., Fence Sanderson, Houses Houses
Saul, A. L., Liverpool
Scorgie, M. M., Paisley
Scott, J. A., Leeds
Scott, J. H., Leith
Shafski, H., Leeds
Sharp, R. A., S. Shields
Smith, C. S., Sunderland
Smith, D., Glasgow
Smyth H. Glasgow Smyth, H., Glasgow Spence, P. C., Hamilton Steel, Annie W., Johnstone Steel, J. P., Leith Steele, W. S., Sunderland Stuart, A. G., Rothes Sutcliffe, C. J., Hull Tait, J. H., Middlesbrough Taylor, J. L., Bridge-of-Allan Thom, A. S., Turriff Todd, G., Glasgow Towers, Inez L., Edinburgh Varley, J. W., W. Hartlepool Walker, A. O., Hamsterley Colliery Wassell, F. W., Glasgow Wassen, J., Arbroath White, F., Huddersfield Wilkie, R. W., Edinburgh Wilson, J. R., Renfrew Young, J. W., Glasgow

## Trade Notes

Sponges are advertised in this issue by John S. Tsipis, 129 Finsbury Pavement, Moorgate, London, E.C.2

EDWARD TAYLOR, LTD., Salford, Glasgow and London, remind chemists that the word "Taylor's" is now their registered trade-mark for plasters for human

WARNING.—Butler & Crispe, druggists' sundriesmen, 80 Clerkenwell Road, London, E.C.r, have issued a warning to manufacturers and agents regarding attempts to obtain goods on a forged order.

Coaguline.—Kay Brothers, Ltd., manufacturing chemists, Stockport, are offering a free sample of the new pack of Coaguline and a demonstration stand. Chemists are asked to state the amount of their stock of this product for which they would like new cartons for re-packing.

CREME LA-NE-TA.—White's Tibo Co., Ltd., Audrey House, Ely Place, London, E.C.I, inform us that this depilatory is to be even more widely advertised during the next few weeks than it has been in the past. The wholesale and retail prices are given elsewhere in this issue, and chemists may obtain supplies through the usual wholesalers.

Munns Brothers, Ltd., 45 Summer Row, Birmingham, suggest that it is frequently preferable, instead of forwarding samples to customers, to send photographs. For this purpose Messrs. Munns can supply inexpensive, yet highly-finished, postcards. The company invite anyone interested in this method to write for a copy of their photographically-printed booklet.

CAROTENE TABLOIDS.—Burroughs Wellcome & Co., Snow Hill Buildings, London, E.C.1, have issued Tabloid Carotene for clinical trial as a prophylactic and curative agent. Four milligrammes of carotene are approximately conjugated to the reterior of the conference of t are approximately equivalent to the vitamin A contained in one teaspoonful of an average cod-liver oil. In tabloid form, it is being issued in bottles of twentyfive sugar-coated products, each of 0.002 gm.

Bottle Caps.—David Moseley & Sons, Ltd., Chapel Field Works, Ardwick, Manchester, have sent us specimens of the bottle caps which they manufacture. These are made of indiarubber, in two sizes and three colours, and they are supplied on showcards holding two dozen. Fitted over a cork or stopper the caps grip the neck of the bottle so securely that the container would in most cases be rendered airtight. The caps will prove especially useful for travellers.

STUDENTS' BOOKS.—The following advertisers in this issue offer books suitable for students:-

Foyle, W. & G., Ltd. Lewis, H. K., & Co., Ltd. Pitman, Sir Isaac, & Sons, Ltd. Potter & Clarke, Ltd. Prescriber, The.
Squire & Sons, Ltd. THE CHEMIST AND DRUGGIST.

EDUCATIONAL INSTITUTIONS. — The following is a list of the educational institutions advertising in this issue:-

Birmingham Central Technical College. Birmingham University. Bradford Technical College. Brighton Technical College. Bristol University. British Optical Institute. Cass, Sir J., Technical Institute. Chelsea Polytechnic. College of Preceptors. Educational Institute of Scotland. Glasgow Royal Technical College. Gordon Hall School of Pharmacy. Harris Institute.

Heriot-Watt College. Huddersfield Technical College. Institute of Ophthalmic Opticians. Kingston-upon-Thames Technical College. Leeds Technical College. Leicester Technical College. Liverpool School of Pharmacy. London College of Pharmacy.

London Hospital Medical College.

Manchester Municipal College of Technology. Manchester Tutorial College.

Manchester University.

Merchant Venturers' Technical College.

National Association of Opticians. Northampton Polytechnic. Northern Polytechnic. Norwood Technical Institute. Nottingham University College. Plymouth Technical College. Robert Gordon's College. Royal Dental Hospital School. Royal Dispensary, Edinburgh. Royal Veterinary College. St. Andrews University. Salford Royal Technical College. School of Pharmacy, The. School of Frankers
Scurr, C. A.
Simpson, W.
South of England College of Pharmacy. Sunderland Technical College. Wandsworth Technical Institute. Westminster College of Pharmacy. Wimbledon Technical College. Woolwich Polytechnic. Worshipful Company of Spectaclemakers.

# Trade-Mark Applications

The figures in parentheses refer to the classes in which the marks are grouped. A list of classes and particulars as to registration are given in "The Chemist and Druggist Diary," 1931, p. 345.

(From "The Trade Marks Journal," July 22, 1931.)

"Jucitu"; for all goods (3). By F. Itting. 8 Grauweg, Probstzella, Thuringia, Germany. 521,208 "Mirados"; for an insecticide (7). By R. Demuth, 68 Salusbury Road, London, N.W.6. 523,372.

"IODENT"; for tooth paste (48). By Jago & Jerome, L 56 Durham Road, Holloway, London, N.7. 517,307.

"MARODA": for a hair waving oil (48). By Mario Coda, 33 Old Compton Street, London, W.1. 522,054.

"DCHARMI"; for perfumery, etc. (48). By Clement Black & Co., 12 Little Regent Street, Sydney, New South Wales, Australia. 520,429.

"ELLISHAVE"; for shaving eream (48). By Ellis Jones & Co. (Stockport), Ltd., Tiviot Colour Works, Manchester Road, Stockport 523,527.

"ETUDE"; for perfumery, etc. (48). By Parfumerie Houbi-gant, 19 Rue du Faubourg Sainte-Honoré, Paris. 522,933.

"KI-UMA"; for all goods (48). By Ki-uma, Ltd., 9 Circus Place, Bath. 523,592. (Associated.)

(From the "Trade Marks Journal," July 29, 1931.)

"CETAMOLL"; for all goods (1). By I. G. Farbenindustrie
A. G., Mainzerlandstrasse 28, Frankfort-on-Main,
Germany. 523,941.

"Capern's Nature Food" with bird design, etc.; for bird food (2) and (42). By H. W. Jenkins, Lewins Mead, Bristol. B519,920/1.

"BATTLE'S MOLE KILLER THE POISON FOR MOLES" on design of molehills ("Battle's" disclaimed); for a preparation for the destruction of moles (2). By J. C. M. Battle, 294 High Street, Lincoln. 522,204. (Associated.)

"ALOF"; for emulsified petroleum for destroying pests (2).

By Agricultural Products, Ltd., 39 Victoria Street,
London, S.W.1. 522,456.

### Births

Notices for insertion in this column must be properly authenticated.

Graham.—At the Gables Maternity Hospital, Newcastle-upon-Tyne, on July 30, the wife of G. H. M. Graham, M.P.S., 4 Stotts Road, Walkerville, Newcastle, of a daughter.

Heyes.—At Shirburn Road, Torquay, on August 4, Joyce (née Thompson), the wife of Clifford Heyes, M.P.S., of a daughter.

STONE.—At II Montague Street, Glasgow, on August 3, Eva, the with of M. H. Stone, M.P.S., of a son.

SUTHERLAND.—At Old Manse, Watergate, Kirkwall, on July 30, the wife of Wm. H. B. Sutherland, chemist and druggist, of a son.

## Marriages

Frater—Mackenzie.—At Station Hotel, Inverness, on August 5, by the Rev. James Wright, M.A., assisted by the Rev. John Ross, Robert Frater, Lossiemouth, to Isabel Gladys Mackenzie, F.S.M.C., youngest daughter of Mr. Thomas Mackenzie, Ph.C., F.B.O.A., Inverness.

HEDDERWICK—GRAY.—At St. David's Church, Dalkeith, on July 28, George Hedderwick, chemist and druggist, to Angela Josephine Gray.

LAURENCE—PROCTER.—At St. Mary's Church, East-bourne, on August 8, Harvey Laurence to Frieda, elder daughter of Mr. Alfred Procter, chemist and druggist (A. Procter & Son, Ltd., chemists), Station Parade.

### Deaths

HACKNEY.—At 34 Green Street, London, E.2, on July 27, Mr. William Francis Hackney, chemist and druggist, aged eighty-three.

Hatfield.—Recently, after a long illness, Mr. David Hatfield (David Hatfield, Ltd., chemists, III Wolverhampton Road, Stafford), aged twenty-five.

Lodge.—On August 6, Mr. Arthur William Lodge, chemist and druggist, 24 St. Oswald Street, Old Swan, Liverpool, aged seventy-five. Mr. Lodge acquired the business in Old Swan, formerly carried on by Mr. Robert Mitchell, in 1898.

OLIVER,—At 7 Lonsdale Street, Hull, on August 9, very suddenly, Mr. Joseph Oliver (director of Lofthouse & Saltmer, Ltd., manufacturing chemists, Hull). Interred at the Hull Western Cemetery on August 12.

Parry.—On July 31, Mr. David Parry, chemist and druggist, 64 Arthur Road, Wimbledon Park, London, S.W., aged sixty-four.

Scott.—At Bodmin, recently, Mr. James Scott, retired chemist and druggist, aged eighty-five. Mr. Scott carried on business at Plymouth and Bodmin for a long period. He is survived by two daughters. [Corrected notice.]

Ward.—At 19 Carisbrooke Road, Leicester, on August 6, the wife of Mr. E. B. Ward, chemist and druggist, 35 St. Stephen's Road. At the funeral service, held on August 10 at St. Mary's Church, Knighton, the following chemists and other friends were present: Mr. W. Westhead (president of the Leicester Branch of the Pharmaceutical Society), Mr. F. H. Clarke, Mr. and Mrs. H. W. Clear, Mr. W. T. Hind, Mr. A. D. Heminshaw, and Mr. Partington (Clark, Nettleship & Bailey, Ltd.).

### Personalities

MR. S. Peat, chemist and druggist, who has for several years been manager at the Fareham (Hants) branch of Boots, Ltd., has retired after being with the company for thirty-seven years. He has been presented by the directors with a silver tea tray and a cheque and by the staff with a biscuit barrel.

Certificates of Naturalisation have been granted to S. de Navasquez, medical practitioner, 7 Langford Place, St. John's Wood, London; F. E. Handel, dental surgeon, "Beechworth," Sea View Road, Herne Bay; D. L. Mirski (known as David Irving), registered dentist, 26 Oswald Road, Oswestry.

We regret to learn that Mr. W. Parry, Great George's Road, Waterloo, Liverpool, a pharmacist and probably the oldest traveller in the drug trade, is laid aside; he hopes, however, to be out of doors in a week or so. Mr. Parry was in business in Scotland Road, Liverpool, for a considerable time, and afterwards became well known on Merseyside as a successful representative.

"The Screen of Life," a novel just published by Wright & Brown, 12-14 Red Lion Court, London, E.C.4 (7s. 6d.), is the work of Mr. N. Wheatcroft Holmes, a pharmacist who qualified in 1915, and after a varied experience with Boots, Ltd., has this year commenced business on his own account. The novel is a keenly observed study of family life, and will, no doubt, find many readers.

### Wills

MR. VERNON WALKER, Pleasley Hill, Mansfield, chemist and druggist. who died on May 13, aged fifty-nine, left £2,094 gross, net personalty £540.

Mr. George Oram Warner, Berkeley, Glos., chemist and druggist, who died on April 11, aged sixty-two, left estate gross value of £1,834, net personalty £673.

MR. MEREDITH WYNTER BLYTH, Barnsley, chemist and druggist, who died on March 25 last, aged fiftynine, left estate gross value £15,324, net personalty £14,532.

MR. GEORGE MILWARD SMITH, Buxton, Derby, chemist and druggist, who died on May 9, aged thirty, left estate of the gross value of £1,345 7s., net personalty £792 14s.

Mr. David Lewis Davies, of 33 Clyde Road, Wallington, Surrey, chemist and druggist, who died on April 19 last, left estate, gross value, £4,632, net personalty £2,846.

MR. WILLIAM ATKINS, Heaton, Newcastle-on-Tyne, chemist and druggist, who died on April 20 last, aged sixty-one, left £5,279 3s. 2d. gross, with net personalty £1,033 3s. 5d.

Mr. William Brown, Hampstead, London, N.W., chemist and druggist, who died on March 16 last, aged fifty-five, left estate of the gross value of £6,414 4s. 7d., with net personalty £5,962 19s. 2d.

Mr. John Mailar Fenton, 236 Oldham Road, Manchester, chemist and druggist, who died on March 21 last, intestate, aged seventy-one, left £2,795 gross, with net personalty £1,149 is. 11d.

Mr. John Joseph MacMahon, 8 William Street, Limerick, Irish Free State, chemist and druggist, who died on January 27, aged sixty, left personal property in England and the Irish Free State valued at £9,553.

Mr. Charles Herschel Chipchase, Twickenham, Middlesex, chemist and druggist, who died at Isleworth on April 8 last, aged seventy-five, left estate of the gross value of £3,337 14s. Id., with net personalty £3,283 5s. 6d.

(Regd.)



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Eighth Edition (1930).

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(New Edition, March 1931).

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THE CHEMIST AND DRUGGIST, 28 ESSEX STREET, LONDON, W.C.2

### Information Department INFORMATION WANTED

F/317. Armesit ampoules E/88. A/128. B/88. H/88.

Armeit ampoules
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Cooper's dentifrice
Dr. Bailey's magic
oils'
Dr. Wright's rheu-M/78.

Dr. Wright s matic remedy B/78.

M/128. Metacuprol

E/88.Muscovito soap  $\mathbf{Y}/58$ . Placo bread M/78.Supremacy hair dye

S/297. Una brand ointments Vitalis hair tonic N/78. E/88. Yvonne rouge

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## CHEMIST AND DRUGGIST

VOL. CXV AUGUST 15, 1931 NO. 20

### The Educational Position in Pharmacy

THE past academic year should have provided most satisfactory educational results in pharmacy. It was complete in systematised training taken after compulsory apprenticeship, and the examinations were practical and written. These things are what our education authorities conceived as being fundamental for satisfactory development in pharmacy. early, and perhaps expecting too much, to look for any great advance at present, but an examination of the position will be useful. In July 527 candidates entered for the Chemist and Druggist Qualifying examination in London against 478 in 1930; the successful numbered 255, compared with 215 in 1930. The failures were 144 against 133, and the referred was the same number in each case. That is decidedly better than we have had for many years, and provides a satisfactory comment on the changes made. It is not enough, however; no technical training staff can be quite happy with less than 75 per cent. of successes. The figures for "refers" in the respective subjects are less in pharmacognosy and pharmacy, but slightly higher in pharmaceutical chemistry and forensic pharmacy. In the Pharmaceutical Chemist Qualifying examination the entries rose from twenty-four to forty, and the pass results were 45 per cent. against 29 per cent. in the previous year, which seems to show that, so far as the technical examination is concerned, organised training in selected centres is steadily advancing in effectiveness. The Bachelor of Pharmacy results are not so good, though more candidates are entering than previously. When we come to examine the Preliminary Scientific examination results we are not quite so happy. There were 520 candidates with 250 failures and 120 referred against 507 candidates, 268 failures and 78 referred in 1930; a scrutiny helps us to understand some of the causes.

### Failures and their Causes

The official summary of failures gives botany 331, chemistry 226, and physics 240, at least double the numbers shown for the more technical subjects relative to pharmacy. The schools where the science subjects are taught are more numerous and apparently less amenable to effective inspection. It is freely said that botany as taught in the schools is not in harmony with that on which candidates are expected to show practical skill. Field botany is interesting in its way, but anatomical structure and physiological functioning are only learned by dissection and experiment. It may be that the oldfashioned characteristics of the syllabus mislead teachers, or that the multiplicity of schools teaching the science subjects is the cause—or that a combination of both is responsible. In any case, the results of the examinations call for full investigation by competent people, and after the discussion on botany

at the last Council meeting something may be done. One further point arises, though it has become almost hackneyed; we refer to the syllabuses for the two examinations. We are told that committees of the Council are exploring the position and outside authorities have been called into consultation. Sometimes the position almost makes one sigh for a director of education in pharmacy. It must be admitted that the subject of proper vocational training is a difficult one, and politicians seldom make good in their educational experiments. It is to be hoped that the Council will not repeat the mistakes of their last revision. The want of sequence between the chemist and druggist qualification and that of the pharmaceutical chemist is a real drawback, and the time is ripe to link up once again. The subjects for the pharmaceutical chemist diploma and the Bachelor of Pharmacy degree are too many in number, but as far as the former examination is concerned, an Act of Parliament would apparently be needed to reduce the number. Looking back on previous years, it appears that slow but steady progress has been made. Much remains to be done, and simplification should be the key, as undoubtedly some additions will be required to the syllabus in harmony with modern therapy. It is some gratification that the points we have made in past years in our review of the educational position of pharmacy have been appreciated by those responsible for maintaining a high standard of training. changes have been increasingly progressive during the last few years, and it is only by providing elasticity in the syllabus that adequate training of the pharmacist to meet the requirements of medical diagnosis and treatment can be maintained.

### Pharmaceutical Scholarships

The returns of the scholarships in pharmacy this year are almost an eclio of the two previous lists. Some advance each year is shown by the leading students, if we take the marking of papers as a guide. At the same time, those particularly interested in stimulating pharmaceutical progress would feel the pathway easier if the Pharmaceutical Society's Council was not so dilatory in rationalising the requirements in its scholarship examinations. Last year we suggested that, owing to the division of training into two academic years, it would be better for the Preliminary Scientific examination to be completed as one of the conditions. Before any successful scholar can reap the benefit of his scholarship, that examination must be out of the way; unless that is so, to think of beginning studies for the Final in the October following the scholarship results published in August is futile. An exception must be made in favour of the Fairchild scholarship examination, which lays down this condition. Scholarships in pharmacy are not infrequently misunderstood —even by teachers. The idea often prevails that they are designed as a test of general education with a bias towards pharmacy. Most of the scholarships were designed solely as a stimulus for the industrious acquisition of knowledge during apprenticeship. The training of apprentices has been talked about almost ad nauseam during the last few years, but progress cannot be easy until the Preliminary Scientific is passed before apprenticeship begins. It may be remembered that the General Medical Council has of late years insisted on the passing of a recognised examination in elementary

physics and chemistry, in addition to matriculation or its equivalent, before a candidate for a medical qualification can be registered as a student. That should be the first step; then the shop training in pharmaceutical chemistry, pharmacognosy, pharmacy and business knowledge is provided with a true basis. It is on this foundation that competitive scholarships should be set up. In the scholarship examination the net is at present too widely spread. The conditions are entirely changed from those prevailing even five years ago. The student who has a good training in the shop or institution should be well equipped to secure a scholarship, with success in the technical training that follows. Moreover, the scholarships provide means for the development of the mind. Material success is valuable; but the personal endeavour to secure a scholarship will kindle a spark of enthusiasm for achievement in technique, research and leadership which is one of life's most valuable assets.

### New Books

Grant, Julius.—The Measurement of Hydrogen Ion Concentration. 9 in. by 5½ in. 9s. Pp. viii + 159. Longmans, Green & Co., Ltd., 39 Paternoster Row, London, E.C.4. [This book is a short and simplified exposition of the theoretical side of the subject for the worker in an industrial laboratory, and it gives a straightforward description of the methods used. No previous knowledge of electro-chemistry is assumed. A subject and author index is provided, and a large number of selected references is appended to each part.]

Stewart, A. W.—Recent Advances in Physical and Inorganic Chemistry. 93 in. by 5½ in. Pp. xi+387. 188. Longmans, Green & Co., Ltd., 39 Paternoster Row, London, E.C.4. [This is the sixth edition of the work by Dr. Stewart. In this edition five entirely new chapters have been inserted. Three deal with modern theories of line spectra (ch. II), emission band spectra (ch. XX), and continuous emission spectra (ch. XXI). The two other chapters, XVIII and XIX, deal respectively with the Donnan Equilibrium and some flame reactions.]

Baker, J. W.—Natural Terpenes. Pp. viii+169. 6s. Methuen & Co., Ltd., Essex Street, London, W.C.2. [Since Heussler published his work on the terpenes, which is now out of date, no systematic English book on the higher chemistry of the terpenes has appeared until now. The present manual fills, therefore, a real want, and students will be very grateful to Dr. Baker for the excellent compilation that he has now given them. The book covers the whole range of the terpenes, sesquiterpenes, diterpenes and triterpenes, and is thorough without being prolix.]

Vallance, R. H., Twiss, D. F., and Russell, Miss A. R.—Sulphur, Selenium and Tellurium (Volume VII, Part II, of "A Text Book of Inorganic Chemistry," edited by Dr. J. Newton Friend). Medium 8vo. Pp. xxviii+420. 25s. Charles Griffin & Co., Ltd., 42 Drury Lane, London, W.C.2. [The part played in chemical industry by sulphur is emphasised by the fact that in this volume pp. 3-285 deal with this element and its compounds. Selenium and tellurium, not found in abundance and generally considered rare elements, do not come in for such detailed treatment. The present volume maintains the traditions of the series.]

Hackney, Norman.—The Quantitative Analysis of Inorganic Materials. 9 in. by 6 in. Pp. xvi + 378, with 28 illustrations. 30s. Charles Griffin & Co., Ltd., 42 Drury Lane, W.C.2. [The author states that this book was written round a collection of analytical methods compiled for the use of chemists under his charge. The author has tried to cater primarily for the student reading for his final degree examination, and perhaps more advanced students, and the book bridges

a gap between a college text-book and an original paper published in a technical journal. The theoretical side of analytical chemistry is emphasised and the practical aspect of the subject is also stressed.]

Sugden, S.—The Parachor and Valency.  $8\frac{3}{4}$  in. by  $5\frac{1}{2}$  in. Pp. vii+224. 12s. 6d. George Routledge & Sons, Ltd., Broadway House, 68-74 Carter Lane, London, E.C.4. [This volume is the second in Routledge's "Twentieth-Century Chemistry Series," edited by the late Sir William Tilden, F.R.S., and J. C. Philip, F.R.S. The development of the electronic theory of valency involves two separate problems, one of which is concerned with the number of electrons associated with a particular linkage, and this constitutes the aspect of valency theory which is discussed in this book. This problem is, in the author's opinion, largely solved. An index is provided, and a number of diagrams illustrate the text.]

Bailey, G. H. and Bausor, H. W.—Chemistry for Matriculation.  $7\frac{1}{2}$  in. by 5 in. Pp. viii + 448. 7s. 6d. W. B. Clive, University Tutorial Press, Ltd., High Street, New Oxford Street, W.C.2. [This is the third edition of a useful introduction to inorganic chemistry on experimental lines, wherein leading facts and laws are introduced to the student as far as possible through the medium of suitable practical work. The book is divided into three sections. Section I is introductory, and the earlier chapters are concerned with the investigation of common substances. This section concludes with chapters on electrolysis and chemical calculations. Section II consists of a systematic treatment of the non-metals, and Section III deals similarly with some common metals and their compounds.]

Handbuch der praktischen und wissenschaftlichen Pharmazie. Edited by Professor Dr. H. Thoms, assisted by many eminent collaborators. 10 in. by 7 in. Parts 32 and 33. Marks 20. Verlag von Urban & Schwarzenberg, Berlin and Vienna. [The issue of these two parts, one of which contains the general index, completes the publication of the compendium embracing the entire field of pharmacy begun in 1926. Professor Thoms's work aims at supplying a complete pharmaceutical library within the compass of six volumes, embracing every branch of knowledge and its applications in practice, to which the pharmacist can refer for information. tion on practically every subject coming within the ambit of his professional activities. That the net has summary of the contents of each volume. The first treats of pharmacy as a calling, and is prefaced by an historical sketch, followed by notes on pharmaceutical legislation in force in Germany and in other European registation in force in Germany and in other European countries. The remainder of this volume deals with the internal arrangement of a pharmacy and its laboratory, fittings, apparatus and utensils on the basis of continental practice. Volume II is a text-book on physics, chemistry and analysis, including a chapter on the isolation of drugs of vegetable origin. Volume III deals with feeds continents and because technical research with foods, condiments and beverages, technical products, such as soaps, glass, paper, indiarubber, glues, inks, fire extinguishers, etc. Volume IV is divided into four sections:—Normal and pathological physiology; hygiene; selected methods of analysis (e.g., analysis of blood, urine, stomach contents, the Wassermann test, etc.); therapeutics (the actions of mixtures of medicinal agents, chemotherapy, organotherapy, serums, vaccines, the relationship between chemical constitution and physiological action, homeopathy, x-ray technique, etc.). Volume V is devoted to botany and materia medica, while Volume VI (2402 pages) is a dictionary of remedies, chemicals, medicinal products and proprietary preparations arranged in alphabetical order, a brief description being given of the composition of each article, characters, tests, action, uses and doses, as well as references to the literature, or name of manufacturer, where applicable. This compendium of pharmacy is so wast in its conception and so admirable in its achieve-ment that it will come to be regarded as a lasting monument to its author, whom we are proud to reckon as one of our own profession and the latest Hanbury medallist.]

# EDUCATIONAL INFORMATION

# Pharmacy

GREAT BRITAIN

HE examinations of the Pharmaceutical Society are written and practical, with a nominal oral in pharmacy and pharmacognosy. Students should consider the regulations carefully, and remember the one requiring candidates to bring to

the practical examination their note-books showing the work during the collegiate Year by year we emphasise this point, but considerable slackness is continually exhibited in keeping notebooks. It is notes on practical work which must be shown, but over and over again processes are written out as though this were proof of careful training when it is merely a demonstration of copy-book methods. The signature of a demonstrator or seal of a college cannot gloss over the deficiency in mental application seen in some of these exercisebooks. The mind in student days struggles through trial, correction until and something like order arises out of the early confusions. Unfortunately, these books often show perfection reached in the first exercise, but the last exercise is like the first, and in the practical examination failure to

satisfy the examiner usually results. Note-books ought to illustrate completely the progress of the student's mind from nebulous ideas to a satisfactory understanding, if they are true indexes of collegiate training.

The written part precedes the practical, and provision is made to hold the examinations at various centres throughout the country in order to prevent any undue travelling. The practical takes place in London and Edinburgh only, and is arranged to follow the written as soon as practicable. Students who have passed recognised science examinations equivalent to the Preliminary Scientific are still increasing in number; and it is admitted to be a satisfactory way to enter pharmacy wherever facilities are available. The impression that the examinations would be harder than during the oral period is proving true if we compare present results with those of a few years ago. It is more due to method than matter. Oral examination, owing to the human factor, was more personal than anything possible under a written system. The latter requires greater exactitude; once a thing is written under these circumstances it is beyond recall, and on that judgment is recorded. The examination papers

continue, in spite of some criticism, to represent fairly what is set forth in the syllabus. No change in the syllabus can be expected for some years, as more experience of the working under the present system is required, but sooner or later rationalisation of requirements must follow the present search after clarity.

Those who are entering, or contemplating entering, pharmacy through the portals of the London University will find the method is not changed from

the original form. The number of schools recognised for the training of students for university standard is slowly increasing, and the past year showed a marked advance in the number of students entered; but the results were very embarrassing. The syllabus for the Intermediate examination in science differs from the Preliminary Scientific in pharmacy; an outline is set out under the University degree. Students who can find time and have the inclination to study in a methodical manner will find the examinations provided by the London University one of the best ways to a pharmaceutical chemist. This presupposes that matriculation has been passed before leaving school, which is the only rational method. The final examination for the Bachelor of Pharmacy degree is a very severe test, mentally and physically, and, no doubt,

### Chemist and Druggist and Pharmaceutical Chemist Qualification

(IN BRIEF)

- r. Notification and registration with the Pharmaceutical Society of having passed an approved Preliminary examination.
- Apprenticeship (indentured), during which
  provision should be made for attendance in
  approved technical institutions of chemistry
  200, botany 120, physics 120 hours.
- Preliminary Scientific examination in chemistry, botany and physics.
- 4. Complete the necessary 4,000 hours' experience in an open shop or approved public institution, during which, or after, spend 300 hours in pharmacy, 120 hours in pharmacognosy, 300 in pharmaceutical chemistry, in an approved school, or 2,000 hours if proceeding for pharmaceutical chemist only, and collegiate hours: pharmacy 620, pharmacognosy 270, chemistry 440, botany 270.
- 5. At the age of 21, or thereafter, Chemist and Druggist Qualifying examination in pharmacy, pharmaceutical chemistry, pharmacognosy, forensic pharmacy; or pharmaceutical chemist qualification in pharmacy, pharmacoguosy, chemistry, botany, and forensic pharmacy.

after the usual period allowed by the Senate for gaining experience of values, the nine days at present required will be reduced. On this would naturally follow a reduction in the time required for the Pharmaceutical Chemist examination.

We recommend that use should be made in the pharmacy, wherever possible, of the syllabus, or parts of the syllabus, outlined in the following pages. The preparation of galenicals is a rare thing in the shop routine, but the possibility of making small quantities should not be overlooked by the employer, as it is of vital consequence to the apprentice. No one should take an apprentice unless he is prepared to train in the routine of pharmacy as well as in business methods; to do so is subversive of the legitimate claims of the apprentice. It not only makes a difference in knowledge and experience, but also renders it easier to manipulate appliances in the practical work when an examiner is investigating. The employer should arrange the work to provide a thorough grounding. It is also advisable for students who are eligible to train and enter for the scholarships now available; they provide an incentive to study and lay a good foundation.

### Preliminary Examinations

The first step on deciding to take up pharmacy is to secure a certificate covering the following subjects:—
(a) English; (b) arithmetic, algebra, geometry; (c) a language other than English; (d) another language or nanguage other than English; (a) another language of one of the following subjects—higher mathematics, experimental mechanics, chemistry, physical geography, physics, botany, biology, geology. These subjects must have been passed at not more than two examinations of the same examining authority. The registrar is empowered to accept certificates fulfilling these requirements when patients from each examining authority. ments when obtained from any examining authority specified below. Should the compulsory subjects, with the necessary additional ones, have been passed at not more than two examinations in any institution not included in the list, such certificates may be submitted for consideration by the Council. In general terms, the certificates submitted must be of equal value to those specified in the list. The list of certificates at present accepted is given below. Any student entering pharmacy and desirous of obtaining a degree through the London University must pass its matriculation examina-

### LIST OF CERTIFICATES ACCEPTED

The following is a list of the principal certificates accepted:-

Queen's University, Belfast.-Matriculation Examina-

Universities of Birmingham, Leeds, Liverpool, Manchester, and Sheffield.—Joint Matriculation Examination. School Certificate Examination.

University of Bristol.—Matriculation Examination.
School Certificate Examination.

University of Cambridge.—Senior Local Examination, Higher Local Examination. Previous Examination. General Examination.

College of Preceptors.—Senior Certificate Examina-on. Preliminary Examination for pharmaceutical students.

University of Dublin.-Any one of four specified examinations.

University of Durham.—First School Certificate

Examination. Matriculation Examination.

Universities of Scotland.—Preliminary Examination in Arts, Medicine, or Science. Final Examination for L.L.A. St. Andrews.

Intermediate Education Board for Ireland .- Senior or Middle Grade Examination. Leaving Certificate Exami-

Educational Institute of Scotland.—Medical Preliminary Examination. Professional Preliminary Examination.

National University Ireland.—Matriculation Examination.

University of London.-Matriculation Examination. Schior School Examination. General School Examination.

University of Oxford.—Senior Local Examination. Higher Local Examination. Responsions. Moderations.

Oxford and Cambridge Schools Examination.—Higher or School Certificate Examination.

Scottish Education Department.—The Intermediate Certificate or Passes in the Higher or Lower Grade of

the Leaving Certificate Examination.

Central Welsh Board.—Senior Certificate Examination.

University of Wales.—Matriculation Examination.

English Board of Education.—First School examination certificate to include a "pass with credit" in English, and in one language in Group II or in mathematical examination certificate to include a "pass with credit" in English, and in one language in Group II or in mathematical examination certificate to include a "pass with credit" in English, and in one language in Group II or in mathematical examination certificate to the control of the contro matics, or mechanics, or physics, or chemistry or botany in Group III.

If a student has passed an entrance examination of any other body not referred to in the above list he should submit the certificate to the Registrar of the Pharmaceutical Society, 17 Bloomsbury Square, London, W.C.I. The list of accepted certificates covers the Empire's universities, so that the conditions practically apply only to foreign institutions.

generally be said that two certificates to cover the whole examination are alone accepted. If the student has not already passed one of the examinations his apprenticeship is of no value until he has acquired the necessary certificate. The favourite examinations for pharmacy students are the certificate of the College of Preceptors, London. and the professional prelimininary examination of the Educational Institute of Scotland. Of these we give particulars below, and refer students for fuller details to the syllabuses of the various bodies.

THE COLLEGE OF PRECEPTORS, Bloomsbury Square, London, W.C.r, holds examinations for junior preliminary certificates four times a year at local centres, a list of which is issued two months before each examination. Entry forms, obtainable from the secretary of tion. Entry forms, obtainable from the secretary of the College, must be filled up and returned six weeks before the day appointed for the examination. On the form the candidate indicates the subjects in which he desires to be examined, those required for pharmacherical states are required at the beginning maceutical students being mentioned at the beginning of this section. The fees are best sent with the entry forms, but, if not, must be paid twenty-eight days before the examination begins. Candidates should obtain the regulations for examinations (post free) from in some of the subjects vary from year to year. A complete set of papers at previous examinations can be obtained from the College at 2s. 2d., post free.

EDUCATIONAL INSTITUTE OF SCOTLAND (Registrar's Office, 47 Moray Place, Edinburgh) holds a preliminary examination for pharmaceutical students four times a

examination for pharmaceutical students four times a year in Edinburgh, Glasgow, London, Liverpool and Dublin. The fee is £1 is., and should be sent to the Registrar with the form of application duly filled in. Exemption can be claimed from subjects already passed on a Leaving certificate. The Institute issues a calendar giving the regulations and examination papers, which can be obtained from the Registrar, price is.

A certificate of having passed a preliminary examina-tion complying with the conditions having been obtained, it should be sent to the Registrar, the Pharmaceutical Society, 17 Bloomsbury Square, London, W.C.1, accompanied by a fee of two guineas, the student being then registered as an "apprentice or student."

Registration is insufficient in itself; articles of pupilage must be taken up and filed, copies of which can be obtained from the Registrar at the same time. Apprenobtained from the Registrar at the same time. Apprenticeship may be served with a pharmacist, firm, or body corporate, or in an institution recognised by the Council of the Pharmaceutical Society. Apprenticeship in wholesale houses is not yet recognised. The specified number of hours required to be spent in an open shop or approved public institution is 4,000. The student who chooses to follow the course mapped out for a pharmaceutical chemist will be required to serve 2,000 hours in a shop kept open for the retailing, compounding and dispensing of poisons or the dispensary of a hospital or similar institution approved for the purpose, and must also enter into appropriate articles of pupilage. In addition, a recognised course of study must be taken before the Preliminary Scientific examination can be undertaken, and consequently a further sequence in college for the Qualifying examination.

### The Technical Examination

The Board of Examiners sits in London and Edinburgh in January, April, July and October for the purpose of conducting the statutory practical and (in two subjects) oral examinations. Prior to these times the written portion of the examinations must be taken at the appropriate centres. For the Pharmaceutical Chemist examination the Board sits in April and July only. The first part includes botany, chemistry and physics, and is called the Preliminary Scientific, the second pharmacognosy, pharmacy, pharmaceutical chemistry, dispensing and forensic pharmacy. Its specific name is the Chemist and Druggist Qualifying examination. For the purpose of simplification the



Pharmaceutical Chemist qualification is dealt with separately under that heading.

The Preliminary Scientific should be taken between

the ages of eighteen and twenty-one; the Qualifying examination can only be taken after the age of twenty-

one has been reached.

The fee payable for the Preliminary Scientific is six guineas, and the conditions are: The candidate must have spent the requisite number of hours in botany, chemistry and physics in an institution approved for the purpose by the Pharmaceutical Society's Council. If a candidate is referred in one subject only he may re-enter for that one only. Two "refers" are equivalent to a failure in all. The re-examination fee is 44 s. A candidate who has failed to attend an experience of the control of amination at the appointed time must pay an additional fee of £2 2s. unless prior to the examination a medical certificate of unfitness is lodged with the Secretary of the Pharmaceutical Society.

Having passed each subject in the Preliminary Scientification.

tific and completed 4,000 hours, not less than two years, in an open shop or approved public institution and reached the age of twenty-one, the candidate should send a birth certificate, together with another fee of £12 12s., and the necessary declaration of having completed the conditions, on the prescribed form, to the Registrar. The examination is conducted on similar lines, and success in all subjects entitles the candidate to be registered as a chemist and druggist by examina-

tion.

All candidates have the choice of being examined in the practical portion of the examination in London or Edinburgh, and they are required to state the venue desired when filling up the entrance form.

### The Examination Syllabuses

The official syllabus of the Pharmaceutical Society for the Preliminary Scientific is set out, though ex-aminations in lieu of this may be taken in approved institutions.

### Preliminary Scientific

### BOTANY

Morphology, including anatomy. The external form of plants: Thallus, root, stem, leaf. The distinguishing features and commoner modifications of these structures. Buds and venation. Principles of branching and different kinds of branch systems. Phyllotaxis and branching. Inflorescence, flower, fruit. Pollination. Self and cross fertilisation. The formation of the seed. Germination. A general acquirings with the elements of plant anatomy. general acquaintance with the elements of plant anatomy the vegetable cell (tissues, e.g., meristematic, epidermal, fundamental and vascular). The characteristic anatomical features of roots, stems and leaves of flowering plants and forns. The method of increase in thickness of stems and

ferns. The method of increase in thickness of stems and roots, and the characters of primary and secondary tissues. The elements of physiology. The nature and source of the food of plants, and the manner in which the raw materials are elaborated. Chlorophyll, its manner of occurrence in the plant; its functions and the conditions under which it discharges them. Reserve materials, their nature, mode of deposition, and the manner in which they are utilised by the plant. The manner in which plants grow, and the conditions necessary for the growth of a plant. The manner in which plants respond to external stimulieg. I light, gravity, etc. Sexual and asexual reproduction. e.g., light, gravity, etc. Sexual and asexual reproduction.

The written and practical examination in botany still continues to show faulty preparation for the test of the examination room, whether in writing or practical. When seeking to express the results of observation, it would seem that many candidates are fond of stating what ought in their opinion to be visible in their prepared object rather than what it actually exhibits. That demonstrates to the examiner the method of the text-book rather than knowledge from actual work and observation. The finest stimulus to produce keenness in botany is to be found in Nature at first hand. A good pocket lens and a handy guide like "Pharmaceutical Botany" (C. & D. Offices), are a wonderful incentive, while systematic section cutting and dissection of tissues for exhibition with the stand microscope and sketching

of the same create the best foundation for progress. details of the tissues depicted in anatomical drawings should also be filled in, as this helps towards accuracy in observation. There are ten questions set in the written paper, but only five required to be answered in the three hours allowed. In the practical and theory a knowledge of physiological processes is expected, and performance of experiments fixes these processes indelibly on the mind. The results in botany make rather dismal reading, and many causes have been assigned; analysis of these would not help here; we have to try to point out the way to proficiency and success. Oral examinations help a candidate who is ready of speech; but when it comes to stating in the written word what his observations are it means that the student must be exact in expression. Consequently, the best practice is to learn to say in writing what the observations are on plants, their structure, tissues and the functions of living material.

The microscope is a means to an end, and one must put away from the mind the intolerable weakness of seeing what is not there. The examiner sees and checks the practical work, and any student who tries to reproduce from memory instead of observation is soon found out. The keynote is assiduous practice, and the acquisition of ability in stating clearly the results of observa-tion. These must be systematically checked by the teacher, as unless this is done the repetition of errors will form a bad habit, causing the student to blame the teacher, examiner, examination syllabus, or, indeed, anything save his own faulty system. Observation is a gift, but it can be acquired; and microscopic work is one of the finest methods of acquisition of this faculty, providing it is properly supervised. It is a great asset in after-life.

Classification.—A general knowledge of the chief divisions of the vegetable kingdom, including a special study of the рим. Тнаскорнута. the plants and families named.

Algæ:—Spirogyra, fueus.
Fungi:—Agaricus, saccharomyces, bacillus.

BRYOPHYTA. Funaria and Pellia.

PTERIDOPHTTA.
Dryopteris felix-mas.

Spermaphyta.

Gymnospermæ:—Pinus, with only the general external features of Cycas and Taxus.

Angiospermæ.

Dicotyledones.—Ranunculacæ, Cruciteræ, La Compositæ, Scrophulariacæ, Cruciferæ, Leguminesæ, Umbelliferæ, Compositæ, Scrophularia Solanacæ, Salicaeæ, Monocotyledoncs:—Graminaceæ, Laliaceæ. Labiatæ.

Practical Examination.—To dissect, examine and describe any plants or parts of plants, and to refer to their systematic position any plants belonging to the above-named families. To prepare for the microscope and describe sections illustrating the anatomy mentioned above, and to bring to the examination his original laboratory note-books.

### CHEMISTRY

An elementary knowledge is required of the following

(a) The chief characteristics of chemical action, the dis-(a) The chief characteristics of chemical action, the distinction of elements and compounds; the laws of chemical combination by weight and volume; the hypothesis of Avogadro; atomic weight and molecular weight; chemical formulas and nomenolature; valency; the distinction between metals and non-metals, and the periodic classification of the elements. (b) The general characters of the non-metals; the chief methods of preparation and the typical reactions of the following non-metallic elements and compounds: Hydrogen, oxygen, ozone, water, hydrogen peroxide, chlorine, bromine and iodine, and their compounds with hydrog n and oxygen; fluorine, hydrofluoric acid, ritrogen, ammonia and ammonium compounds, the oxides of nitrogen, nitrous acid, nitric acid; sulphur, hydrogen sulphic, sulphurous and sulphuric amhydrides and acids, sulphure acid; phosphorus, the oxides and oxy-acids of phosphorus, the chlorides of phosphorus, silica, beron, boric acid. (c) The general characters and classification of the metals, and the general methods of forming oxides and salts; the sources, the usual method of extrac-





ing and the chief properties of the under-mentioned metals, also the modes of preparation, properties, adulterations and contaminations of their principal compounds: Potassium, sodium, lithium, barium, strontium, calcium, magnesium, zine, aluminium, iron, chromium, manganese, nickel, cobalt, arsenic, antimony, tin, copper, bismuth, lead, silver, mercury, gold and platinum. (d) Carbon, its oxides, methane, ethylene and acetylene. The candidate will also be expected to possess a general knowledge of the methods of estimating carbon, hydrogen, oxygen, and nitrogen in organic compounds, and of obtaining molecular formulæ. The candidate is expected to solve simple problems relating to the weight and volume under different conditions of temperature and pressure of elements and compounds concerned in chemical reactions.

Practical Examination.—To exhibit a practical acquaintalso the modes of preparation, properties, adulterations and

Practical Examination.—To exhibit a practical acquaint-ance with the methods of preparing the more important inorganic substances. To identify by chemical tests the more important non-metallic elements and their compounds, more important non-metallic elements and their compounds, as well as the metals and salts indicated in the foregoing list. To analyse a mixture containing not more than two basic and two inorganic acid radicles. To understand the principles of volumetric analysis, and to prepare and standardise, and use volumetric solutions of inorganic acids, salts, alkalis, potassium permanganate, and silver nitrate. The candidate will be required to bring to the practical examination his original laboratory note-books for inspection.

Chemistry is essentially a practical subject; it simply cannot be mentally absorbed from lectures or textbooks. The lectures are pointers to indicate the way, and the demonstrator is the person to see that the narrow way is kept, since it is so easy to go astray unless the rules applicable are observed. Chemistry is an exact science, and requires exactitude in its treat-The examination consists of a written paper of eight questions of which only six must be answered, and it is safe to say those six questions require clear thinking to answer. It is good practice to keep a book in which answers to pointed questions have been written up from memory and checked later. Such systematic training in the method of expression takes a student well on the road to success.

Finally, students should from their early studies conscientiously keep note-books of the work done at college. Nothing is more destructive of a candidate's chance than carelessly written or copied matter in notebooks; the student should write up what has been done or found, and be sure that each section of work is initialed, stamped and corrected where necessary at the college as soon as completed. The time to acquire in understanding of chemical methods in synthesis or analysis is when the work is done and found correct or incorrect. Things are thus fixed on the mind just when the occasion is ripe, so that great stress should be placed on early checking and reasoning based on the results of work done. The rejections in chemistry are still too high, when we consider the care exercised in the provision of practical training. All note-books must be available for the examiner at the practical examinations.

### Physics

Candidates are required to possess an elementary knowledge of:-

(a) Units; mass; weight; the balance, force, energy and work; levers and pulleys; gravity; centre of gravity; distinctions between solids, liquids and gases; transmission of pressure in liquids; water-pumps; the syphon; Boyle's law; atmospheric pressure; barometers; air-pumps; diffusion; dialysis; specific gravity; vapour density.

(b) Temperature; thermometry; changes in volume of solids, liquids and gases with alterations of temperature; quantity of heat; specific heat; change of state; latent heat; boiling and freezing points; vapour pressure.

(c) Propagation of light; laws of reflection and refraction; photometry; simple properties of mirrors, lenses and

tion; photoretry; simple properties of mirrors, lenses and

prisms; the eye as an optical instrument; the principles of the correction of errors of vision by means of lenses.

(1) Simple properties of magnets; simple phenomena of static electricity; electric currents; primary and secondary cells; the magnetic chemical and heating effects of currents. rents; Ohm's law.

Practical Examination.-To perform simple experiments, solve simple problems, and to show a knowledge of the construction and use of physical apparatus, so as to illustrate the subjects detailed above. The candidates' original laboratory note-books will be required.

The examination in physics consists of a written

paper of three hours, covering a choice of seven questions from ten set, and two hours' practical manipula-tion and display of technical knowledge to the satisfaction of the examiners. The introduction of professional examiners in this subject worked havoc among candidates in the early days of practical work, but that is now changed. In no section of the Preliminary Scientific has greater advance been made. The physics provided are well within the compass of an intelligent youth, and once it is realised that interesting experiments can be made even with homely materials, the terrors of the subject vanish and success is natural.

### EXTERNAL EXAMINATIONS IN PHARMACY

Apart from the examinations of the Pharmaceutical Society's examiners as set out in the above syllabus, there is a proviso for the acceptance of certificates in lieu of the Preliminary Scientific. At present the specification is vague, since no schools are approved and certificates are considered on their merits. They are: (1) The Final or Intermediate examination of any University in England and Wales, or equivalent examination in a Scottish University approved by the Pharmaceutical Council. (2) The Higher School Certificate examination conducted by an examining body approved by the Board of Education for subjects taken as principal subjects. The fee on acceptance of these certificates is £2 2s., and subsequently the same regulations apply as to the Pharmaceutical Society's examinations.

### Qualifying Examinations

### PHARMACOGNOSY

The details of the syllabus are as follows:-

To recognise specimens of crude drugs mentioned in the British Pharmacopœia or in the annexed list; to be acquainted with their botanical, zoological and geographical sources, commercial varieties, the natural orders to which they belong, and the mode of collection and preparation for the model of the product of the pro they belong, and the mode of collection and preparation for the market; to indicate the morphological nature of such as are organised, and the mode of formation of such as are unorganised, to describe them correctly, and to point out diagnostic characters either chemical or physical, the latter so far as they can be ascertained by the use of a lens. To name the chief active constituents of official drugs, to know the proportion prepart in good samples of the more inverthe proportion present in good samples of the more important of them, and to possess a practical knowledge of any pharmacopoial tests or processes of assay applied to crude drugs or their official products.

Agar-agar Alkannæ Radix Altheæ Radix Amomi Meleguetæ Semina Arecæ Semina Arnicæ Rhizoma Cacao Semina Calendulæ Flores Cambogia Canellæ Cortex Cantharis Cassiæ Cortex Cetraria Islandica Chondrus crispus Chrysanthemi cinerariæfolii

Flores Cimicifugæ Rhizoma Cocæ Folia Cocculus Indicus Conii Fructus Convallariæ Flores  $\operatorname{Crocus}$ Cumini Fructus Cydoniæ Semina

Elaterium Eucalypti Folia Euphorbium Fœni-græci Semina Fucus vesiculosus Galbanum Guarana Guttapercha Hellebori nigri Rhizoma Hyoscyami Semina Ignatii Semina Inulæ Radix Iridis Rhizoma Lacca Lauri Fructus Lupulus Lycopodium Manna Mastiche Moschus Mylabris Olibanum Papaveris Capsulæ Physostigmatis

Semina

Pilocarpi micro-phylli Folia Pimenta Piper longum Piper nigrum Pix Burgundica Quercus Cortex Rhamni Frangulæ Cortex Sabinæ Cacumina Sandaraca Sanguinariæ Rhizoma Sanguis Draconis Sarsæ Radix Scammonium Sinapis Albæ Semina Sinapis Nigræ Semina Stramonii Semina Sumbul Radix Tonco Semina Ulmi fulvæ Cortex Vanillæ Fructus Veratri albi Rhizema

The candidate is also required to recognise any of the plants in the following list:—

Aconitum Napellus 1 Althæa officinalis Anthemis nobilis Atropa Belladonna Avena sativa Brassica alba Brassica sinapioides Bryonia dioica Cochlearia Armoracia Colchicum autumnale Conium macula-Cytisus Scoparius Daphne Laureola Daphne Mezereum Datura Stramonium

Digitalis purpurea Dryopteria Filixmas Fæniculum capillaceum Hordeum distichon Hyoscyamus niger Juniperus communia Juniperus Sabina Lavandula vera Matricaria Chamomilla Mentha piperita Mentha Pulegium Mentha viridis Enanthe crocata Papaver Rhœas Papaver somniferum

Pinus sylvestris Prunus Laurocerasus Quercus Robur Rosa canina Rosmarinus officinalis Ruta graveolens Salix alba Sambucus nigra Solanum Dulcamara Taraxacum offinale Taxus baccata Triticum vulgare Ulmus campestris Valeriana officinalis

Students have not many opportunities of handling crude drugs before college begins, but every chance should be seized for a first-hand acquaintance. It is a pity that this subject is affected more than any by the lapse of time in the revision of the Syllabus. Many of the drugs mentioned are archaic, and owing to the progress of synthetic medicinal substances are never likely to come into use again. The candidates need not fear on this account, as in the conduct of the examination common sense is applied and only reasonable requirements expected. The written paper allows three hours for six questions out of The range covers writing out the characteristics of a specified drug and frequently to give sketches to illustrate the answer. Methods of collection and storing and a knowledge of constituents are required. Briefly, the old oral which allowed a succession of interrogations is condensed into a limited number of questions. By such means the margin of error is lessened, and it behoves the candidate to be able to visualise the characteristics of common drugs without straying too much into variations which conjure up substitutes. The usual difficulty is faulty diagnosis, and limitation of specimens makes it dangerous. In the practical work recognition of half a dozen or more specimens must be made and entered on the sheets provided, together with such information as is requested. Simple tests for powdered drugs and the use of the microscope for the identification of well-defined powders are required. The rejections are now more in conformity with expectations from the average of mental equipment.

### PHARMACY

I Pharmacy (General)—Operations requiring the use of heat. Evaporation, with particular reference to the preparation of extracts; special characters and modes of preparing the various classes of extracts; influence of surface, temperature and pressure upon the rate of evaporation; water, steam, and sand baths; distillation, ordinary, fractional, steam, and destructive, distinctive characters and objects of each; official preparation illustrating the various kinds of distillation, apparatus employed, the retort and receiver still and worm, Liebig's condenser, principles of sterilisation. Sublimation; its objects and applications in pharmacy; official products of sublimation, calcination, and fusion. Desoccation; temperature best suited for drying particular drugs, loss in drying vegetable drugs, forms of drying ovens, principles on which they are constructed and used. Disintegration of solid substances; cutting, bruising, and pulverisation, apparatus employed, principles indicating which is to be adopted in particular instances; methods for controlling the degree of comminution, sieves and sifting, trituration, levigation, elutriation, granulation, including methods for producing certain chemicals as fine powders, small crystals, scales, etc. Filtration objects and methods, filtering media, means of expediting filtration; dialysis, its application in pharmacy, construction and use of the dialyser. Expression; methods of obtaining the juices from plants; recovery of the residual liquids from

tincture marcs, etc., screw, hydraulic and other presses. Solution: its nature, solvent power of various menstrua, influences of (a) temperature; (b) state of division of the substance to be dissolved; (c) time; (d) position of the substance in the menstruum; lixiviation, infusion, digestion, and decoction; maceration, percolation, and displacement, principles on which the successful performance of these processes depends; form and materials for percolators and other vessels employed. The principles involved in the dispensing of medicines, particularly with reference to the best excipients and methods for forming pill masses, the preparation and nature of emulsions, the most suitable emulsifying agents and the best means of suspending insoluble substances in liquids. The candidate is also required to show a general knowledge of the processes, and understand the principles of the processes by which official galenical preparations are made, and the principles on which they are based.

The candidate will be required to read without abbreviation autograph Latin prescriptions, translate them into English, understand the grammatical construction, and render a literal as well as an appropriate translation of the directions for use; to detect errors, discover unusual doses, and have a general knowledge of posology; to calculate percentages and other quantities occurring in prescriptions.

II Practical Pharmacy and Dispensing.—To perform such operations of the British Pharmacopeia, or such parts of them as may be practicable, involved in the processes for preparing collodions, confections, decoctions, dilute acids, extracts (so'id and liquid), glycerins, infusions, juiccs, liniments, lotions, mixtures, ointments, pill masses, plasters, powders (simple and compound), scale preparations, solutions, spirits suppositories, syrups, tinetures, vinegars, waters and wines.

To compound and dispense medicines as prescribed; to write the directions in concise language and in a neat and distinct handwriting; to finish and properly direct each package, and to bring original laboratory note-books.

The examination in pharmacy consists of a three-hours' written paper divided irto two parts. The first part consists of four questions, all of which must be attempted; two out of part two, in which four further questions are set out, must also be answered. Analysis of the papers set shows that a student must be able to state how particular galenicals are prepared, and to contrast methods, giving where possible the reasons for variations and simple calculations in adjustments of strengths, to show a knowledge accompanied by an annotated sketch of some piece of apparatus and a knowledge of the uses of extractives. The student needs to show a more exact knowledge than hitherto. In an oral examination a student could sometimes away " with shaky knowledge; but that is not so easy with a written paper, which must be fairly exact. In the practical there is no change, unless we regard printed prescriptions instead of script as one. dispensing is better standardised than formerly, but that only means that better manipulative skill is expected. The oral is only of fifteen minutes' duration, and deals with reading prescriptions in script form.

Careful analysis of results in the pharmacy examination in dispensing shows failure to resolve itself into two main causes, casual errors and faulty training. Presence of mind and the sense of awareness in what one is doing is the key to overcome casual erors. To double the amount of poison in calculation is fatal to a success more surely than it might be in actual life. Casual mistakes are too frequent in the examination room, and there is no reason why they should occur. Constant repetition of processes will not save the dispenser; he must practice the art of concentration, know his job and cut out all mind wandering. Above all, in apprenticeship he should practice on suitable materials the art of making galenicals and all the processes with their whys and wherefores. Pharmacy is the fundamental of the whole examination, and if this is faulty no man can ever make a satisfactory pharmacist. Another thing which shows marked deterioration is pharmaceutical writing. It is slowly drifting towards the sloven-liness of medical calllgraphy; it is a danger which should be carefully avoided.

### PHARMACEUTICAL CHEMISTRY

To have a general knowledge of the preparation, principal properties, and reactions of the following: Hydrocyanic acid, cyanides, ferrocyanides, ferricyanides, oxalic acid, methyl and ethyl alcohols, acetone, formic and acetic aldehydes and acids, chloral hydrate, chloroform, iodoform, aldenydes and acids, chloral hydrate, emorotorm, lodotorm, ether, ethyl acetate, acetamide, aloin, oleic acids, soaps, glycerin, lactic acid, citric and tartaric acids, sucrose, dextrose, lactose, starch, salicin, urea, simple urethanes, and ureides. Benzene, phenol, picric acid, phenolphthalein, nitro-benzene, aniline, acetanilide, benzoic acid, salicylic acid, salol, gallic acid, tannic acid.

To have a general knowledge of the adulterations and contentiations which was recovered to the elements and innegation.

taminations which may occur in the elements and inorganic compounds included in the British Pharmacopæia, and such

of the organic compounds mentioned above as are in-cluded in the British Cluded in the British
Pharmacopoeia, and the
methods by which the purity
of these substances is deter-

#### Practical Examination

To identify by chemical tests the following organic compounds: Cyanides, oxalates, acetates, tartrates, citrates, benzoates, salicylates, starch, sucrose, dextrose, lactose, salicin, cocaine, quinine, morphine, strychnine, and their salts; methyl alcohol, ethyl alcohol, acetone, formethyl alcohol, acetone, form, aldehyde, glycerin, chloro-form, phenol. To detect and identify the adulterations and contaminations which may occur in the clements and inorganic compounds ineluded in the British Pharmacopæia and in such of the organic compounds mentioned in the list of substances for identification as are included in the British Pharmacopæia. To perform those volumetric determinations and those requiring the use of a nitrometer which are described in the British Pharmaeopæia. To have a practical acquaintance with the methods of preparing the more important inorganic substances, and also the following organic compounds: Ether, chloroform, ethyl nitrite, hydrocyanie ethyl nitrite, hydrocyanic acid, acetauilide and nitro-benzene, so that he may be able to explain to the ex-

aminer the operations involved in their preparations, and, if called upon, to perform the operations or certain stages of them himself.

To determine quantitatively the total alkaloids in cinchona bark and its official preparations, in the liquid extract of belladonna and its preparations, and in the liquid extract of ipecacuanha; also the strychnine in the extract, liquid extract, and tincture of nux vomica; the morphine in opium and its extract, liquid extract and tincture, any of the above alkaloids in any other preparations by methods involving principles similar to the above, and the resin in tincture of jalap.

Candidates may consult the British Pharmacopoeia and the British Pharmacoutical Codex, but the necessary information is now given on the paper set, so that it resolves itself into a question of interpretation in practical skill of the methods set out.

The candidate is required to bring to the practical examination his original laboratory note-books for inspection.

Pharmaceutical chemistry as a written paper is of three hours' duration, in two parts of four questions;

not more than three out of each part but only five in all must be attempted. The examiners affirm that candidates show by their answers they do not give sufficient attention to pharmacopæial chemistry and confine themselves to little beyond simple elementary facts Candidates are now showing better preparation, and this care is seen in an increase of successes. The questions set in the papers are informative ones and comparatively straightforward.

### FORENSIC PHARMACY

The Candidate will be required to possess such informa-The Candidate will be required to possess such information concerning the following enactments as is contained in the paniphlet "Forensic Pharmacy," published by the Fharmaceutical Press:—The Pharmacy Acts, the Arsenic Act, the National Health Insurance Act, the Dangerous Drugs Acts and Regulations,

Apothecaries Act, Medicine Stamp Act, Shops Act (sec-tions dealing with the sale of medicines), Weights and Measures Act, Protection of Animals Act, Sale of Food and Drugs Acts, Registration of Business Names Acts, Venereal Discase Act, and the relevant sections of the Acts relating to the use of stills, the sale of spirits (including methylated spirit, medicated wines), storage and sale of explosives or inflammable substances, sale of abortifacients.

The examination forensic pharmacy is a little misleading—it really means an examination in law as affecting pharmacy and shopkeeping, since quite a number of the laws mentioned above apply generally, and not to pharmacy in particular. The examination is a written one, which is quite an advan-tage for all concerned. The "pamphlet" published by the Pharmaceutical Press is the book which gives the extent of the laws for the examination. The book, being an official one, is limited to a bare exposition, and this is the only case where a book—nominally a pamphlet—is mentioned. The poisons law is

material, together with the Dangerous Drugs Acts and Regulations. For an exposition of these something more is needed than the efficial pamphlet. The C. & D. Poisons Cards, Nos. 1 and 2, summarise the Acts, together with an extended list of several thousand poisons. The Dangerous Drugs Card, No. 4, the bangerous Diags Card, No. 4, is the best epitome of the Acts and Regulations, giving the practical points. In addition, the whole of the laws specified in the syllabus as affecting pharmacy are analysed and special points given in the C. & D. Diary, 1931. It may be pointed out that these cards and the Diary are devised on the basis of meeting the needs of the practical pharmacist and the examiner. No candidate need fear a written examination of three hours if he has digested the forensic exposition in the C. & D. Diary, 1929. Three hours for six questions on this subject as set out in recent papers seems almost farcical, as a well-trained candidate who has applied the hints set out above could answer the questions in half the time. The examination is largely a test of memory and application of common sense in dealing with tricky or seeming variations in the selling or dispensing of poisons.

The elements and morganic the painphiet Potensic Platish Pharmacopoeia, and such Pharmaceutical Press:—The Syllabus for Chemist & Druggist Examinations (IN BRIEF)

Preliminary Scientific

BOTANY

Morphology, including Anatomical Structure; Physiology, Reproductiou; Physical Effects of Light and Gravity, classification, dissection and description of plants within specified classes.

CHEMISTRY

Chemical Principles; Non-Metals and their Compounds; Characters and Classification of Metals; Formation of Oxides and Salts; Carbon and its Oxides; Knowledge of Estimation of Carbon; Hydrogen, Nitrogen; Simple Chemical Problems.

PRACTICAL CHEMISTRY

Analysis of a salt containing not more than two Metals and two Acid Radicals; Identification and Knowledge of specified metals and salts; Principles of Volumetric Analysis and standardisation of Solutions.

PHYSICS

Conservation of Energy; Gravitation, Balance, Pressures; Diffusion, Vapour Densities; Thermometer, Barometer; Specific Gravity. Mass, Force, Energy, Work; Forms of Matter; Temperature and Pressures; Light: Reflection and Refraction; Correction of Vision: Maguets: Static and Current Electricity; Primary and Secondary Cells.

PHARMACOGNOSY

Pharmacopoeial Drugs and others specified; Recognition, Classification; Sources, Structure, Chemical and Physical Characteristics; Active Principles.

PHARMACCUTICAL CHEMISTRY

Preparation and Properties of specified medicinal organic compounds. Pharmacopæial test for impurities, assay, and volumetric determinations.

FORNSIC PHARMACY

Knowledge of Schedules, Conditions and Precautions of Sale of Poisons, and Laws Affecting the Kceping of Open Shop.

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### Summary of Examination Fees

Apart from the fee for collegiate courses, the following are payable by pharmacy students:-

Registration as student, £2 2s.
Preliminary Scientific, £6 6s.
Re-examination in case of failure, £4 4s.; a person who has failed to attend, £2 2s.
Chemist and Druggist Qualifying examination,

Re-examination in case of failure, £6 6s.; a person who has failed to attend, £3 3s.

Those about to enter the calling should be informed as to the conditions for a chemist and druggist qualification, and under competent advice, parents and guardians should weigh carefully the advantages and disadvantages of the method of procedure. The condi-tions of the chemist and druggist qualification are dealt with under the appropriate heading. Two ways are possible for the pharmaceutica! chemist qualification, one through the examinations of the Pharmaceutical Society and the other through the University of London or any other University which may later be recognised. The University training and examinations include both internal and external students.

In the case of the pharmaceutical chemist, there is no change in the times of the examination. The entrance examinations are the same for those of the chemist and druggist qualification, and the same applies to the Preliminary Scientific. At this point a decision must be made for the passing from that of a chemist and druggist to a pharmaceutical chemist qualification if it comes as an afterthought. A candidate must be twentyone years of age and supply the usual proofs. hours in an open shop or recognised institution are 2,000. The hours for studying at college are 1,000, made up by 620 in pharmacy, 270 in pharmacognosy, 440 in chemistry, and 270 in botany. The examination is in botany, chemistry, pharmacognosy, pharmacy (including the translation and dispensing of Latin prescriptions) and forensic pharmacy. The conditions of failure are the same as in the other examination, with this addition: If the standard required for the pharmaceutical chemist qualification is not reached, but the work done, in the opinion of the board of examiners, reaches the chemist and druggist standard, a certificate for that qualification may be awarded. A chemist and druggist who desires to go further will be entitled to enter for the pharmaceutical chemist qualification on an additional curriculum of 1,060 hours, including 240 in pharmacy, 110 in pharmacognosy, 420 in chemistry, and 290 in botany; but he will be excused the examination relating to translation and dispensing of prescriptions and forensic pharmacy. Articles of pupilage apply equally to students for the pharmaceutical qualification, the hours being 2,000. The syllabus is as follows:-

### APPENDIX 5

### SYLLABUS FOR THE PHARMACEUTICAL CHEMIST QUALIFYING EXAMINATION

Although the study of French and German is not included in the systematic course of instruction required by Regula-tion 25 (b) of the Regulations for the Pharmaceutical Chemist Qualifying Examination, questions will be set involving (1) the translation of passages in French and in German, and (2) answers with regard to the subject matter thereof.\*

### BOTANY

consists of two Papers and a Practical Examination. (1) The consists of two Papers and a Practical Examination. (I) The principles of morphology: the special morphology of medicinal plants. (2) Anatomy and histology: the systematic anatomy of medicinal plants; microchemistry. (3) The distinguishing characters of the chief taxonomic divisons of plants, including the following groups and families, particular attention being directed to such plants as are of pharmacomostical importance: cognostical importance:-

THALLOPHYTA

Algæ: Cyanophyceæ, Phæophyceæ. Rhodophyceæ. Fungi: Phycomycetes, Lichenes, Bacteria. Chlorophyceæ. Diatomaceæ,

Ascomycetes, Basidiomycetes,

PTERIDOPHYTA.

Lycopodinæ:-Lycopodiaceæ.

Filicinæ: -Polypodiaceæ.

Equisetina.

SPERMAPHYTA.

Gymnospermæ:—Coniferæ.

Angiosperma.

Monocotyledones: -Graminaceæ, Liliaceæ. Araceæ,

Amaryllidaceæ, Iridaceæ. Dicotyledones—Salicaceæ, Fagaceæ, Ulmaceæ, nabaceæ (= Cannaboideæ), Polygonaceæ, Ranunculaceæ, Papaveraceæ, Cruciferæ, Rosaceæ, Leguminosæ, Rutaceæ, Euphorbiaceæ, Malvaceæ, Myrtaceæ, Umbelliferæ, Ericaceæ, Gentianaceæ, Boraginaceæ, Labiatæ, Solanaceæ, Scrophulariaceæ, Rubiaceæ, Caprifoliaceæ, Valerianaceæ, Campanulaceæ, Compositæ.

(4) The general Principles of Plant Physiology with special reference to the processes of metabolism.

### Practical Examination

To (1) examine, describe, dissect and make preparations, both macroscopic and microscopic, of plants or parts of plants included in the foregoing schedule; (2) refer to their appropriate systematic position plants or parts of plants comprised in the foregoing schedule; (3) identify British angiosperms by means of a flora; show a practical knowledge of the methods and apparatus used for demonstrating the main facts of the physiology of plants. the main facts of the physiology of plants.

#### CHEMISTRY

consists of two Papers and a Practical Examination,

To have a general acquaintance with the five main divisions of the subject, viz.:

(1) General Theoretical Chemistry; (2) Inorganic Chemistry; (3) Organic Chemistry; (4) Physical Chemistry; (5) History of Chemistry since the time of Boyle.

The candidate will be allowed to bring into the examination laboratory any one book on quantitative analysis provided that it does not contain any reference to qualitative ar.alvsis.

### PHARMACOGNOSY

### consists of two Papers and a Practical Examination.

To possess a general knowledge of the crude drugs of vegetable or animal origin described in the British Pharmavegetable or animal origin described in the British Pharmacopæia, of their more important constituents and of their chief commercial varieties; to be acquainted with the methods commonly adopted in the microscopical examination of vegetable drugs, including the isolation and identification of the various tissues and cells; measurement; microchemical tests; and the means of examining fabrics used for experience. used for surgical dressings.

### Practical Examination

The candidate will be required to identify any crude drug f vegetable or animal origin described in the British Pharmacopæia; to demonstrate diagnostic characters ascer-Pharmacopoeia; to demonstrate diagnostic characters ascertainable by means of a lens, or by dissection; to make, sketch and describe microscopical preparations of any organised vegetable drug contained in the British Pharmacopoeia, either in the entire or powdered state; to point out distinctive histological characters in the same; to identify in the form of powder such as are commonly used in that condition, and to ascertain their freedom from admixture by comparison with authority material. comparison with authentic material.

### PHARMACY

To show a general knowledge of the following, and a practical acquaintance with pharmaceutical apparatus and operations : -

Solution and the conditions affecting it; methods of determining solubility, the preparation of isotonic, colloidal and other solutions. Filtration, colation, clarification and decolorisation. Preparations of crystals and granules. Dialysis. Apparatus used and principles involved in the drying, disintegrating, powdering and sifting of crude drugs and in the processes of evaporation, distillation, sublimation, calcination and fusion; the application of these processes in pharmacy. Expression; recovery of residual liquids from tincture marcs. The principles of sterilisation;

<sup>\*</sup> Candidates are recommended to read some books or papers in French and in German on the subjects of the examination. In all subjects the candidate is required to bring the original laboratory books signed by the teacher, which may show any original work done

sterilisation of apparatus and materials. Preparation of aseptic and antiseptic dressings; determination of the proportion of wool and cotton in dressings made from the mixed fibres. Enzymes and their action in the manufacture and preservation of pharmaceutical preparations. An elementary knowledge of vaccines and scrums and the methods by which they are prepared and standardised.

To possess a general knowledge of the chemistry of the organic and inorganic substances or compounds of the British Pharmacopœia, and also a general knowledge of the manufacture of the preparations of the British Pharma-

#### Practical Examination

To conduct the operations by which the preparations of the British Pharmacopogia are made; to dispense prescriptions, and to have a general knowledge of posology.

tions, and to have a general knowledge of posology.

Qualitative and quantitative analysis with special reference to the tests and assay processes of the British Pharmacopeia by which the purity of chemical drugs is ascertained and by which the principal constituents of vegetable drugs and their preparations are determined.

### FORENSIC PHARMACY

This is the same as set forth in the Chemist and Druggist qualifications.

### University Examinations in Pharmacy

### LONDON

In order to be admitted to a degree of B.Pharm., London, either as an internal or external student, candidates must (1) matriculate in one of the ways provided by the regulations, (2) pass the Intermediate examination in science, (3) have followed an approved course of study under recognised teachers of the University and in approved institutions. The fee for each examination is £6 6s. Application for copies of the regulations should be made to the Academic Registrar, University of London, South Kensington, S.W.7, or for an external student to the External Registrar.

The Intermediate examination of the University for external and internal students is set in two papers and a "practical" in each subject. Chemistry includes methods which lead to the discovery of the composition of common natural materials; determination of molecular weights, chemical laws and processes. In the practical: Quantitative, gravimetric, and volumetric work. Notebooks must be available for inspection by the examiners.

In Physics: The properties of solids, liquids and gases; principles of heat, sound and light, and the properties of magnetism and electricity.

Botany: Characteristics of angiosperms, gymnosperms, and specified natural orders. Pteridophyta, bryophyta, algæ and fungi, together with elementary physiology. In the practical will be included dissection and examination of parts of plants.

and examination of parts of plants.

Zoology: The fundamental facts and laws, including specified types. General organisation of types, biological laws, structural phenomena, reproduction and diagnostic characteristics of lower forms of life. In the practical: Parts of the animals selected will require description, and some dissection is expected.

Biology: This is an alternative subject to zoology. It includes the differences between living and non-living matter; cells, integration, differentiation and division of labour. Enzyme action, transformation of energy in living matter; nutrition, stimulus, response, movement, chemical co-ordination and general mechanisms. Reproduction; embryo, and heredity. In the practical: Appropriate physiological experiments, dissection, microscopy and elementary embryology.

The B.Pharm, degree Final examination is the same for external as for internal students, covering botany, chemistry, pharmacognosy, and pharmacy, and is set out in the syllabus for the Pharmaceutical Chemist qualification, minus forensic pharmacy. The degree cannot be taken until three years after matriculation.

A degree granted by the University does not entitle to registration by the Pharmaceutical Society, but regulation 29 provides that any registered apprentice or

student who has served the period of practical training and produces to the registrar a notification of having passed the Final examination for the degree of bachelor of pharmacy of the University of London, or a corresponding degree of any other University approved by the Pharmaceutical Society's Council, shall be deemed to have passed the Pharmaceutical Chemist. Qualifying examination in the subjects set out on the final certificate, and shall be entitled to enter the examination of the Society in forensic pharmacy and, on passing, be entitled to registration.

### MANCHESTER

Science degrees in pharmacy are conferred by the universities of Glasgow and Manchester. In Manchester, for the B.Sc. (Pharm.) degree, candidates must first pass the University Matriculation examination or its equiva-They should then attend courses in chemistry, physics, botany and pharmacy, and present themselves for the Intermediate examination in the first three subjects at the end of the first year. Such candidates before proceeding to the Final examination, must present certificates of having attended (1) during the second year courses in chemistry (advanced), botany (advanced), and pharmaceutics; (2) during the third year further approved courses in chemistry or botany, and in pharmaceutics (advanced); and (3) must present satisfactory evidence that they can read scientific literature in either French or German, or in any other language approved by the Faculty. They should present for the Final examination (i) chemistry or botany, (ii) pharmaceutics. The lecturer in pharmacognosy, materia medica and practical pharmacy is Mr. James Grier, M.Sc., Ph.C. The cost of a degree course varies with the subjects chosen and with the nature of the degree, but the average fees for an ordinary B.Sc. degree course amount to £37 16s. a session. Full particulars may be obtained from the Pharmaceutical Department, University of Manchester.

### GLASGOW

In Glasgow, candidates must first pass the Preliminary examination. In not less than three academic years they must attend courses of Instruction at the University or the Royal Technical College, and must have been "practically engaged in the operations of pharmacy." The regulations may be obtained from Jackson, Wylie & Co., 73 West George Street, Glasgow.

### Teaching Institutions

Schools and institutions are recognised by the Pharmaceutical Society in most parts of Great Britain, some for the Preliminary Scientific examination, and some for the Chemist and Druggist Qualifying and the Pharmaceutical Chemist Qualifying examinations. The following are the principal schools and institutions in question:—

### ENGLAND AND WALES

### LONDON

### The School of Pharmacy

17 Bloomsbury Square, W.C.I

Dean of School: Prof. H. G. Greenish, D. ès Sc. A course for Part II only of the Chemist and Druggist Qualifying examination commences October 1931, ending June 1932. Fee, £32 3s. The first and second year of a two-year's course in pharmacognosy and pharmacy for the Pharmaceutical Chemist Qualifying examination and for the degree of B.Pharm. of the University of London commence October 1931, ending June 1932. These courses have been arranged with University College, and an inter-collegiate time-table drawn up enabling botany and (in part) chemistry to be taken at University College and the other subjects at the Society's School. Fee for each year of the course, £44 15s. No course for Preliminary Scientific. Fees include full subscription to the Students' Association,



to the University of London Union, and, in the case of inter-collegiate students, to the Union Society of University College.

### Birkbeck College

Bream's Buildings, Fetter Lane, E.C.4

Principal: George Senter, D.Sc. Recognised for Preliminary Scientific examination. Autumn term commences September. Evenings only.

### Chelsea Polytechnic School of Pharmacy Manresa Road, Chelsea, S.W.3

Principal: F. J. Harlow, M.B.E., Ph.D., B.Sc. Pharmaceutics: C. Morton, B.Sc., Ph.C., F. R. Bateson, Ph.C., S. G. Stevenson, B.Pharm., B.Sc., F.I.C., J. E. Woodhead, B.Sc., Ph.C., F.I.C. Chemistry: C. Dorée, M.A., D.Sc., Head; J. C. Crocker, M.A., D.Sc., F.I.C., F. H. Lowe, M.Sc., J. H. Skellon, M.Sc., A. Hebdon, B.Sc. Biology: H. B. Lacey, F.L.S., Head; C. A. Ealand, M.A., W. B. Turrill, D.Sc., C. J. A. Berkeley, B.Sc., W. H. Leigh-Sharpe, M.Sc., Miss M. E. Millner, M.Sc. Physics: L. Lownds, Ph.D., B.Sc., F.Inst.P., Head; W. B. Medlam, B.Sc., W. Mandell, Ph.D., M.Sc., L. J. Freeman, Ph.D., A.R.C.Sc., D.I.C. The School of Pharmacy has recently been extended, and now includes laboratories for practical pharmacognosy, pharmaceutical research, practical pharmacy, pharmaceutical chemistry and large scale galenical manufacture, in addition to a lecture theatre accommodating 100 students. Day and evening courses in preparation for the Preliminary Scientific, Chemist and Druggist, Pharmaceutical Chemist and B.Pharm. examinations commence on Monday, September 21, 1931. Fees: Day courses, £7 per term; evening courses, £1-£3 per session (three terms). A copy of the prospectus of the School of Pharmacy may be had on application to the Principal.

### Gordon Hall School of Pharmacy for Women

Drayton House, Gordon Street, W.C.1

Principals: Miss E. S. Hooper, B.Sc., F.I.C., Ph.C., and Miss K. M. King, Ph.C. Courses of training for the examinations of the Pharmaceutical Society and Society of Apothecaries Hours of instruction, 10—4.30 p.m. Fees, 25 guineas per session. Particulars from Principals. Telephone: Museum 3930.

### London College of Pharmacy 361 Clapham Road, S.W.9

Staff: Irvine G. Rankin, B.Sc., Ph.C. (Principal), V. P. A. Gelli, B.Sc., P. M. Sully, B.Pharm., Ph.C. Nine, six and three months', also part-time, courses for the Preliminary Scientific and Chemist and Druggist Qualifying examinations. Fee, \$10\text{ ros.} per term. Evening classes: Tuesday, Wednesday and Thursday. Scheme of preparatory study can be taken before entering College. New large histological, pharmacognosy and galenical-making laboratories now equipped. Large botanical garden containing over 300 specimens.

### Norwood Technical Institute

Knight's Hill, West Norwood, S.E.27

Principal: L. N. Coombs, B.Sc. Day and Evening Classes for Preliminary Scientific examination. Staff: Chemistry and Physics, W. Gerrard, M.Sc. Botany, Ethel R. Spratt, D.Sc. Session opens September 21. London fee, from 15s. for part-time course.

### The South of England College of Pharmacy 186 Clapham Road, S.W.9

Principal: H. Lucas, Ph.C., F.C.S., assisted by a qualified staff of teachers. A six months' course for Part I. Fee, 20 guineas, and a nine months' course for Part II, fee 30 guineas; commence on October 8. The courses are independent and hours of instruction are 9.30 a.m.—5 p.m. daily. Revision courses for both

parts are obtainable, fee 10 guineas per term. A "oncea-week" class for Part I begins on October 14, and will be held each Wednesday, 2-9 p.m. (junior and senior classes). Fees from 1 guinea per term.

### Wandsworth Technical Institute

High Street, Wandsworth, S.W.18

Day and evening classes in chemistry, physics and botany for Qualifying examination of Pharmaceutical Society. Fee, 15s. a session.

West Ham Municipal College

Principal: T. C. Baillie, M.A., D.Sc., Head of Chemistry Department: G. Dean, M.A., D.Sc. Pharmacy and Materia Medica: W. A. Knight, Ph.C. Evening course in pharmacy, materia medica and chemistry; commencing September 21. Fees, 14s. to 28s. per session.

### Westminster College of Pharmacy

190 Clapham Road, London, S.W.9

Founder: G. S. V. Wills, Ph.C. Principal: P. H. Woodnoth, Ph.C., F.C.S., assisted by J. G. Everett, Ph.C., A. E. Williams. M.P.S. Tuition for Preliminary Scientific and Qualifying examinations. Revision course of six weeks commences on August 5. Fee £6 6s. The 1931-32 session commences on October 7 and arrangements are made for revision and six and nine months' courses for the Preliminary Scientific and Chemist and Druggist Qualifying examinations respectively. Parttime classes for Preliminary Scientific examination are held and preliminary correspondence courses.

### Wimbledon Technical College

Gladstone Road, S.W.19

Lecturers: F. C. Ray, M.A., Ph.D., A.I.C., C. T. Archer, M.Sc., D.I.C., J. J. Hedges, Ph.D., B.Sc., F.Inst.P., T. C. Thrupp, B.Sc., D.I.C., R. P. Linstead, D.Sc., Ph.D. Classes for Preliminary Scientific examination. Session commences September 21, 1931.

### Woolwich Polytechnic

Woolwich, S.E.18

Principal: A. F. Hogg, M.A., F.C.S. Head of Chemistry Department: P. C. L. Thorne, M.A., M.Sc., Ph.D., F.I.C. Lecturer: J. G Kettlewell, M.Sc. Head of Physics Department: T. B. Vinycomb, M.C., M.A. Lecturers: J. Poole, B.Sc., C. Dixon, B.Sc. Afternoon and evening classes. Fees: First afternoon or evening, 20s.; second, 10s.; any additional, 5s., per session of 36 weeks. Recognised for chemistry, physics and botany in Preliminary Scientific examination.

### **PROVINCES**

### Aberystwyth, University College of Wales

Principal: H. Stuart Jones, M.A., D.Litt., F.B.A. Courses in chemistry and botany adapted to the requirements of candidates for examinations of the Pharmaceutical Society. Prospectus from the Secretary.

### Accrington Technical School

Principal: J. P. Ackroyd, B.Sc. Staff: N. Booth, B.Sc., S. Hopwood, A.M.C.T. Science course each year occupies three evenings of two and a-half hours each, one and a-half hour being devoted to practical work. Three years' course. Fee: 7s. 6d. a year.

### Barnsley Technical College

Principal: D. Paton Grubb, B.Sc. (Edin.). Chemistry Department: A. Price, B.Sc. (Lond.), F.I.C.; W. W. Close, B.Sc., A.I.C.; E. Lyon, B.Sc.; W. G. White; B.Sc. Session from September 7, 1931, to July 9, 1932. Affiliated to the University of Sheffield. Recognised for the Preliminary Scientific examination. Part-time course for apprentices in the district one whole day a week.



Fee:  $f_2$  2s. the session. Evening instruction in chemistry and physics, and in botany on one afternoon a week.

### Barrow-in-Furness Technical College

Lecturers.—Chemistry: T. Hopkins, Ph.D., F.I.C. Physics: G. Cole, B.Sc. Botany: H. H. Hughes, B.Sc. Evening classes in chemistry, September to April. Fees: 7s. 6d. to 10s. Day and evening courses for apprentices, September to July. Fees: Course, including chemistry, physics and botany, £3 3s

### Birmingham (Aston) Technical College

Principal: Raymond R. Butler, M.Sc., A.I.C., F.C.S. Chemistry Lecturer: J. C. Hutton, B.Sc. Physics: W. B. Wynn, B.Sc. Fees: Part-time day, fi to fi ios. per session. Evening classes, ios. 6d. Recognised for chemistry and physics.

### Birmingham Central Technical College

Principal: D. S. Anderson, Ph.D., B.Sc., M.I.Mech.E., M.I.A.E. Head of Department of Pharmacy: H. Berry, B.Sc., Ph.C., A.I.C. Courses for the following examinations commence on September 28:—Preliminary Scientific, Chemist and Druggist Qualifying, Pharmaceutical Chemist Qualifying, Intermediate B. Pharm. (London), Final B. Ph. (London), Final B. Ph. (London).

### Birmingham (Handsworth) Technical College

Principal: W. E. Harrison, B.Sc. Physics: M. B. Falla, B.Sc.; E. A. Lees, A.R.C.S.; H. J. Roper, B.Sc.; A. P. Jones, M.Sc. Chemistry: W. W. Sirman, B.Sc.; W. H. Hardaker, M.Sc., B.Sc.; L. G. Beresford, B.Sc. Botany: W. H. Hardaker, M.Sc., B.Sc. Recognised for Brediminary Scientific examination. Special courses for Botany: W. H. Hardaker, M.Sc., B.Sc. Recognised for Preliminary Scientific examination. Special courses for apprentices, also for Professional Preliminary examinations. Fees: Evening—Chemistry, physics and botany, IIs. 6d. per session. Day—One half-day per week, £1 IIs. per session; two half-days, £1 IIs. per session; additional half-days, £1 per session. Students under eighteen years of age, reduced fee of £1 per session for two half-days per week (additional half-days as above).

### Bolton Municipal Technical College

Head of Chemical Department: T. M. Nightingale, B.Sc. Chemistry: F. Smith, B.Sc., C. Smith, F.C.S., A. Sykes, B.Sc., F. Slater, B.Sc., H. E. Buckley, M.Sc., C. W. Wood, M.Sc. Physics: J. W. Grime, B.Sc., J. Stafford, B.Sc. Botany: Mrs. M. S. Burgess, B.Sc. Recognised for Preliminary Scientific examination. Course fees: 5s. to £2 2s. Non-Course fees: One or two evenings per week, from 7s. 6d. to 15s.

### Bournemouth Municipal College

Principal: C. E. Walker, M.A., B.Sc. Lecturers.—Chemistry: E. A. Seeley, Ph.D., A.I.C., Miss H. V. Davies, B.Sc. Botany: Miss H. V. Davies, B.Sc.; Miss G. A. Beer, B.Sc. Physics: R. M. Clark, B.Sc., A.M.I.E.E.; G. H. Hamilton, B.A., B.Sc.; T. T. Smith, B.Sc. Recognised for Preliminary Scientific examination. Day classes, fee, £6 6s. per term; reduced fees for part time. Evening classes.

### Bradford Technical College

Principal: H. Richardson, M.Sc. Head of Department of Pharmacy: F. N. Appleyard, B.Sc. (London), F.I.C., Ph.C. Assistant Lecturer in Pharmaceutics: T. C. Denston, Ph.C., and J. W. Cooper, Ph.C. Demonstrator in Pharmacy: D. W. Shaw, B.Sc. (Birmingham), Ph.C. The College courses are recomised by the Pharmaceutical The College courses are recognised by the Pharmaceutical Society for the purpose of training students for the Preliminary Scientific, Chemist and Druggist Qualifying, and Pharmaceutical Chemist Qualifying examinations, and by the University of London for the training of candidates for the degree of Bachelor of Pharmacy. A course is also provided for the Assistants' examination of the Society of Apothecaries.

### Brighton Technical College

Full-time courses for (a) the Preliminary Scientific, (a) the Preliminary Scientic, (b) the Chemist and Druggist Qualifying, (c) the Pharmaceutical Chemist Qualifying and Bachelor of Pharmacy. Examinations are held under the guidance of Mr. H. B. Mackie, Ph.C., B.Pharm., Head of the School of Pharmacy, assisted by Mr. E. R. Parken, B.Sc., Ph.C.; Miss Mary E. Stevens, Ph.C., silver medallist, and Mr. A. F. Caldwell, Ph.C., Pereira medallist, and the staffs of the Physics, Chemistry and Biology Departments. The fee for any day course for students residing in Brighton, either at home or in approved rooms during in Brighton, either at home or in approved rooms during term time, is £24 for a session or £9 per term. The Pharmacy Department includes separate laboratories for dismacy Department includes separate laboratories for dispensing, special testing, galenical pharmacy, and pharmacognosy, with suitable preparation rooms; other departments are equally spacious and well equipped. An R. A. Cripps' exhibition of twenty guineas is open annually to apprentices and assistants to pharmacists in Sussex, Kent, Surrey and Hants, who are qualified to proceed to the Chemist and Druggist or Pharmaceutical Chemist courses. By arrangement with the local associations of pharmacists, a part-time course extending associations of pharmacists, a part-time course extending over three years enables apprentices to prepare for the Preliminary Scientific examination, but intending apprentices are urged strongly to complete this examination before starting actual apprenticeship. Applications for admission to the College should be made as early as possible to the Principal.

### Bristol Merchant Venturers' Technical College

Principal: Andrew Robertson, D.Sc.; Superintendent, W. A. Andrews, B.Sc., A.I.C.; Head of Pharmacy Department, D. J. Williams, B.Sc., Ph.C.; Lecturers in Pharmaceutics, W. Cooper, Ph.C., G. H. Moore, Ph.C.; Lecturer in Botany, Miss E. E. M. Beer, B.Sc.; Laboratory Steward, V. Walsh; Head of the Chemistry Department, W. A. Andrews, B.Sc., A.I.C.; Lecturers in Chemistry, T. Malkin, B.Sc., Ph.D., A. Marsden, F.I.C., E. J. Riggs, B.Sc., H. J. Willavoys, B.Sc., A.I.C.; Laboratory Stewards, Violet H. England, E.N.S.P. Palmer; Head of Physics Department, Professor D. Robertson, D.Sc., M.I.E.E.; Lecturers in Physics, W. E. Palmer, B.Sc., H. J. Willavoys, B.Sc., A.I.C.; Laboratory Steward, Jessie Brittin.

### Cardiff Technical College

Principal: Charles Coles, B.Sc. Head of Pharmacy Department: R. Vernon Lloyd, B.Pharm., Ph.C. Lecturcrs in Pharmaceutics: J. M. Davies, Ph.C., L. L. Jones, Ph.C. Assistant Lecturer in Pharmacy: Wm. Sumner, Ph.C. Chemistry: H. B. Watson, D.Sc., F.I.C., E. A. Rudge, M.Sc., F.I.C., H. Aldred, M.Sc., P. H. Griffiths, B.Sc., J. F. J. Dippy, Ph.D., Pharmaceutical Chemistry: H. A. Perkin, Ph.C. Physics: W. S. Vernon, M.Sc., J. Webber, B.Sc., F.S.M.C. (Hons.), F.B.O.A. Botany: J. Mangan, M.A., F.R.C.Sc., Miss E. Melville, Ph.C. Nine-months' day course for Preliminary Scientific and Chemist and Druggist Qualifying examination, and three ceutical Chemist Qualifying examination, and three m October. Also two years course for Pharmaceutical Chemist Qualifying examination, and three years' course for Degree in Pharmacy. Fee, £20. Apothecaries Hall Assistants' examination, nine-months' course. Fee, £20. Pharmaceutical Chemist Qualifying examination. Fee: October to July, £20.

### Darlington Technical College

Principal: J. W. Angles, M.Sc., M.I.Mech.E. Chemistry: A. J. Bishop, B.Sc., and W. H. Ryder, M.Sc. Evening pharmacy course. Fees: 15s. to 25s. Recognised for Preliminary Scientific examination.

### Derby Technical College

Principal: W. A. Richardson, B.A., D.Sc., B.Sc. (Eng.), A.M.I.Min.E. Lecturers.—Chemistry: J. Yates, M.Sc., F.I.C., G. E. Pool, B.Sc., F.I.C., A. Walton,



M.Sc., A.I.C. Physics: G. H. Broom, B.Sc., F. Record, B.Sc., W. D. Jones, B.Sc. Botany: W. B. Randles, B.Sc. Courses arranged in day and evening classes. Fees: Day, £5 5s. per term; evening classes, 10s. per session. Recognised for Preliminary Scientific examination. Part-time day courses (one day per week and evening), £1 per session inclusive.

### Exeter, University College of the South-West of England

Principal: John Murray, M.A. Chemistry: Professor W. H. Lewis, M.A., F.I.C., T. S. Britton, D.Sc., F.I.C., Miss R. King, M.Sc. Physics: F. Newman, D.Sc., A.R.C.Sc., V. H. L. Searle, M.Sc. Botany: J. L. Sager, M.A. Courses include preparation for the Preliminary Scientific examination.

### Halifax Municipal Technical College

Principal: A. R. Boeree, M.A., B.Sc., F.I.C. Head of Chemistry Department: W. J. Stansfield, A.R.C.S., A.I.C. Lecturer in Botany: C. Fielding, Ph.C. Instruction (two sessions) for Preliminary Scientific examination. Afternoon and evening classes. Duration of session: September 14, 1931, to July 21, 1932. Fee, £1 is. per session.

### Harrogate Technical School

Principal: W. E. C. Jalland, M.Sc. Chemistry: W. Wallis, Inter. B.Sc. Physics: T. H. Lusher, B.Sc., and F. R. Richardson, B.Sc. Botany: Rees Price, B.Sc. Recognised for Preliminary Scientific examination. Evening classes. Fees 12s. 6d. per session.

### Huddersfield Technical College

Principal: J. F. Hudson, M.A., B.Sc. Full time and part time courses in subjects for Preliminary Scientific examination of the Pharmaceutical Society are held. Also part-time courses in bacteriology, pharmacy and materia medica. Fee: Full-time, £12 12s. a session; part-time course, £3 3s. Prospectus on application.

### Hull Municipal Technical College

Head of Chemistry Department: Geo. E. Johnson, B.Sc., F.I.C., assisted by eight lecturers. Classes in inorganic and organic chemistry, physics, botany, materia medica, oil, paint and varnish manufacture.

### Kingston-upon-Thames Technical College

Head of Pharmacy Department: Mr. H. P. Starck, M.A. (Cantab), Hons. Natural Science Tripos. Chemistry: elementary, inorganic, Mr. R. Atkin, M.A., B.Sc. (Oxon); advanced inorganic, Mr. H. P. Starck, M.A. (Cantab), organic, Mr. J. E. Roberts, B.Sc.; physics, elementary, Mr. H. P. Starck, M.A. (Cantab); advanced, Mr. H. P. Starck, M.A. (Cantab); botany, elementary, Miss L. M. Cunningham, B.Sc. (Edin); advanced, Miss L. M. Cunningham, B.Sc. (Edin). This course prepares students for the examinations of the Pharmaceutical Society of Great Britain.

### Lancaster Technical College

Headmaster: F. H. Mould, B.Sc., A.R.C.S. Lecturers: S. Walton, B.Sc., P. Gillman, B.Sc., W. Knowles, B.Sc., J. Baty, B.Sc. Mr. Ackroyd, B.Sc. Miss E. Richardson. Recognised for Preliminary Scientific examination.

### Leamington Technical School

Lecturers. — Physics: F. W. Onslow, B.Sc.; Chemistry: A. W. Wellings, B.Sc.; Botany and Biology (to be appointed). Recognised for Part I of Qualifying examination. Physics Friday, chemistry Wednesday, botany and biology Tuesday. Times of classes, 7.30 to 9.30 p.m. Fee, Ios. per class.

### Leeds College of Pharmacy

Principal: A. W. Lupton, Ph.C. Full-time course for Chemist and Druggist Qualifying examination begins October 6, fee £31 10s. Six months' course for Preliminary Scientific examination, £21. Revision course from August 13. Fee £6 6s. Apothecaries' Hall course (nine months), £21, commences October 6.

### Leeds Technical College

Principal: J. H. Everett, B.Sc. Chemistry: R. Gawler, M.Sc., F.I.C., assisted by A. Taylor, M.Sc., A.I.C., H. E. Goodson, A.R.C.S., A.I.C., F. Crosland, B.Sc., H. J. Ewart, B.Sc., A.I.C., M. S. Fox, B.Sc., R. A. Hobley, B.Sc., J. H. Naylor, M.Sc., F.I.C., J. T. Thompson, M.Sc., F.I.C., G. O. Yorke, M.A. Physics: J. Crosfill, B.Sc., C. F. Crymble and L. Moore, M.Sc. Botany: Miss M. E. Malins, B.Sc., Rev. H. Parish, F.R.M.S. Day course in chemistry, physics and botany for the Preliminary Scientific examination. Day course in Biology. Fee for full-time day course, £18 18s. per annum. Part-time day courses from £3 3s. per annum. Evening courses from 15s. to 30s. per session (September to Easter).

### Leicester College of Technology

Principal: L. W. Kershaw, B.Sc., A.M.Inst.C.E., F.G.S. Head of Department of Pharmacy: A. R. G. Chamings, B.Pharm., Ph.C. Full-time courses for Preliminary Scientific, Chemist and Druggist, Pharmaceutical Chemist, Intermediate and Final B.Pharm.(Lond.) examinations commence on September 21. Special one-year course for the Pharmaceutical Chemist diploma, for those who have already passed the Chemist and Druggist Qualifying examination. For further particulars and brochure of the Pharmacy Department application should be made to the Registrar.

### Leicester, The Wyggeston Grammar School

Headmaster: T. Kingdom, M.A. Staff: Chemistry: Alwyn Pickles, M.Sc. (Lond.), H. Garside, B.A. (Oxon). Physics: E. C. Cowell, B.Sc. (Lond.), D.I.C., J. R. Cottrill, B.A. (Cantab.). Botany: H. M. Lacey, M.A. (Cantab.). Recognised for Preliminary Scientific examination; three-term session from September to July. Fee, £18 18s. for the session.

### Liverpool Municipal Technical School

Principal: J. Scholes Hague, M.Sc. Chemistry: A. E. Findley, B.Sc., F.I.C., F. J. Smith, B.Sc., Ph.D., T. J. Roberts, F.C.S., and E. Jones, B.Sc., A.I.C. Physics: S. S. Richardson, D.Sc., and W. Creer, B.Sc. Botany: M. C. Pratt, B.Sc. Fees (three afternoon or evening classes weekly): £1 to £2 as to course. For the new session 1931-32 is the addition of a part-time Preliminary Science course for one full day per week on Wednesdays. A two years' course is now arranged for Part I examinations.

### Liverpool School of Pharmacy

Principal: H. Humphreys Jones, F.I.C., Ph.C., F.C.S., assisted by J. Butler, B.Sc., F.I.C., Ph.C., W. E. Coates, B.Sc., A.I.C., M.P.S., Philip H. Jones, F.I.C., R. A. Williams, Ph.C., M.P.S., W. G. Cottom, M.P.S., S. D. Littlewood, M.P.S. Revision course commenced August 10 for the October examination. Autumn session commences October 8. Six months' course for the Preliminary Scientific examination: Fee, 20 guineas. Nine months' course for the Qualifying examination: Fee, 30 guineas. Part-time classes.

### Manchester College of Technology

Principal: B. Mouat Jones, D.S.O., M.A. Lecturers: O. R. Howell, Ph.D., D.Sc., R. J. Hughes, B.Sc., A. Adamson, M.Sc. Tech., D. N. Mercer, Ph.D., H. P. Walmsley, D.Sc., W. Anderson,





B.Sc., Miss G. Duncan, W. O. Howarth, M.Sc. Complete course for Preliminary Scientific Qualifying examination given jointly with Botanical Department of University. Course extends over two years, and is also intended to prepare students for the Manchester, Fairchild and Leverhulme Scholarship Competitions held in June. Particulars on application to the Registrar.

### Manchester University

Lecturers in pharmaceutics: James Grier, M.Sc., Ph.C., H. Brindle, B.Sc., A.I.C., Ph.C., Miss Ivy Roberts, M.Sc., Ph.C., Miss J. Duncan, B.Sc., Ph.C., assisted by W. L. Fowlds, B.Sc., and L. H. Boardman, Ph.C. Courses for Preliminary Scientific, Chemist and Druggist and Pharmaceutical Chemist Qualifying examinations in Pharmaceutical Department Commence examinations in Pharmaceutical Department commence in October; composition-fees from £23 2s. to £31 1os. Part-time (afternoon and evening) courses, extending over two years, have also been arranged for Preliminary Scientific examination at College of Technology. Degree courses in pharmacy are available.

### Armstrong College, Newcastle-upon-Tyne, University of Durham

Pharmacy students admitted to classes in chemistry, physics and botany. Fees, £25-£30 per annum, according to the classes taken, registration fee, subscription to students' societies and university union, amounting to £5 13s. 6d. per annum.

### Norwich Municipal Technical College

Principal: Howard A. Costigan, Ph.D., B.Sc., F.C.S., A.I.C. Chemistry: W. W. Reed, M.Sc. Physics: A. G. Coe, B.Sc., A. V. Lishman, B.Sc. Botany: P. P. F. Looker. Biology: H. J. Howard, F.L.S. Recognised for Preliminary Scientific examination. Combined day and evening courses. Session open September 14. Fees: £1 to £1 10s. per session.

### Nottingham, University College

Head of School of Pharmacy: A. O. Bentley, Ph.C. Lecturers: G. E. Trease, Ph.C., H. A. Turner, Ph.C., J. E. Driver, M.Sc., Ph.D., A.I.C., B. D. Shaw, B.Sc., Ph.D. Full-time day course for Chemist and Druggist examination. Fee £30. Two year course for B. Pharm. and Ph.C. examinations. Fee £31 10s, per session. Three days per week course for Preliminary Scientific examination. Fee, £15 per session.

### Oxford City Technical School

Department of Pure Science, Chemistry and Physics: J. S. Hill, M.A., B.Sc. Botany: H. Baker, M.A. Recognised for the Preliminary Scientific examination. Evening courses in chemistry, physics and botany, extending over three years. Inclusive fee per year 20s.

### Plymouth and Devonport Technical College

Principal: W. S. Templeton, M.A., B.Sc., F.Inst.P. Physics: The Principal, F. C. Marks, B.Sc., G. H. Lock. Chemistry: F. A. Royle, M.Sc., Ph.D., F.I.C., F.C.S., T. Thorne Barnes, B.Sc. Materia Medica and Pharmacy: A. H. Ware, Ph.C., V. Smith, M.Sc., A.I.C., Ph.C. Botany: Miss F. A. Stanbury, M.Sc., Miss F. L. Smith, B.Sc. Part-time courses for Prelininary Scientific Examination held three afternoons or evenings each week. Fee: £3 3s. per session. Full-day courses for registered students. Fees: £15 to £20.

### Portsmouth Municipal College

Principal: Leonard B. Benny, M.A. (Cantab.), B.A. (Lond.); Vice-Principal: W. H. Watson, M.Sc., A.R.C.S., F.C.S. Head of Pharmacy Department: F. Hemming, Ph.C., M.P.S., F.C.S. Lecturers: Pharmacy, N. Francis, Ph.C., M.P.S., Miss M. Wells, Ph.C., M.P.S. (sera and vaccines), J. A. D. Radcliffe, M.B., Ch.B.; Chemistry, G. M. Painter, (M.C.), B.Sc.,

A.I.C., W. F. Andrews, M.Sc.; Botany, Miss C. M. Gibson, B.Sc., Miss G. F. Selwood, B.Sc., Miss F. L. Beanland, M.Sc.; Physics, A. T. Guinevan, B.Sc., J. Daley, B.Sc., A.R.C.S., D.I.C.; Chemistry Demonstrator, N. St. Clair Jerome, B.Sc., B.Pharm. The college is an approved institution under the regulations of the Pharmaceutical Society and the London University. the Pharmaceutical Society and the London University.

### Preston, Harris Institute

Affiliated to Universities of Manchester and Liverpool. Tuition in chemistry, physics and botany. Session begins in September. Fee, £9 10s. per session of three subjects, or £3 3s. 4d. per term. One subject, £3 10s. per session; two, £7. Recognised for Qualifying examination part I. ination part I.

### Salford Royal Technical College

Principal: Bertram Prentice, D.Sc., Ph.D. Recognised for Preliminary Scientific examination. Day courses and evening classes for pharmaceutical students in chemistry, botany and physics. Day-course fee: £3 3s. per term. Evening: 15s. to £1 5s.

### Sheffield Central Commercial College

Principal: W. B. Marshman. Staff:— Chemistry: S. Birks, M.A., A.I.C., Ellis Jackson, B.Sc., G. R. Davies, B.Sc. Physics: S. Northeast, B.Sc., J. Hiles, M.Sc., E. Ridler, M.Sc. Botany: A. Burgess, B.Sc. Recognised for Preliminary Scientific examination. Evening classes. Fee for complete course, £1 1s.; junior students, Les 6d students, 12s. 6d.

### Southampton-University College

Professor of Chemistry: D. R. Boyd, D.Sc., Ph.D., F.I.C. Special facilities in chemistry department for pharmaceutical students. Tuition fees and further particulars of the courses from the Registrar.

### Sunderland Technical College

Principal: V. A. Mundella, M.A., B.Sc. Head of Pharmacy Department: Miss H. C. M. Winch, Ph.C., Pharmacy Department: Miss H. C. M. Winch, Ph.C., A.I.C., assisted by lecturers in each subject. Head of Chemistry Department: C. F. Baker, B.Sc., Ph.D. Recognised for Preliminary Scientific, Chemist and Druggist and Pharmaceutical Chemist Qualifying examinations. Recognised by the University of London for B.Pharm. Degree. Full-time day: Preliminary Scientific, October 1 to June 30; fee £18. Chemist and Druggist and Pharmaceutical Chemist, September 21 to June 30; fee £20. Deposit fee in each case. £2 (158. June 30; fee £20. Deposit fee in each case, £2 (15s. returnable). Part-time evening: Preliminary Scientific, three sessions, October 1 to June 27. Fees, 35s. to 40s. Chemist and Druggist (preliminary course), October 1 to June 30. Fees: 50s. to 70s.

### Swansea Municipal Technical College

Staff:—Chemistry: E. A. Tyler, M.A., F.I.C. Physics: J. C. Kirkman, B.Sc., F.P.S. Botany: P. S. Jewell, M.A., A.I.C. Courses: Preparatory part-time day and evening; full-time nine mouths' course for Preliminary Scientific examination. £15 15s. Season opens September 22. Sessional fee,

### Wigan Mining and Technical College

Principal: J. F. S. Ross, M.C., B.Sc. (Eng.). Head of Chemistry Department: E. B. Naylor, M.Sc., F.I.C. Lecturers: H. Crofts, M.Sc., A. Cooksey, B.Sc., A.I.C. Lecturer in botany and biology: H. B. Clint, Ph.D., B.Sc. Full-time pharmaceutical course (fee, f10 10s.); part-time day and evening courses (f1 1s.). Recognised for Preliminary Scientific examination.

### Wolverhampton and Staffordshire Technical College

Head of Chemistry Department: W. Regan, B.Sc. Lecturer in Chemistry: M. Schofield, M.A., B.Sc. Materia Medica and Pharmacy: J. M. Caley, M.P.S.

Botany: G. D. Hogan. Physics: W. R. Torrance, B.Sc., M. Schofield, M.A., B.Sc. Session, September to April, followed by short summer session. Fees: Chemistry or pharmacy course, £1 10s.; evening lecture only, 10s. per session each subject.

### SCOTLAND

### Aberdeen, Robert Gordon's Colleges

Chemistry: W. Maitland, D.Sc.; R. Craven, B.Sc.; Constance M. McDowell, B.Sc., Ph.D.; J. Lynch, B.Sc. Pharmacy: E. G. Bryant, B.Sc., Ph.D., Ph.C.; D. S. Rattray, Ph.C.: Euphemia C. Barnett, B.Sc.; Andrew J. Thorburn, B.Sc. (Pharm), Ph.C.; James W. Tocher, M.B., Ch.B., D.P.H. Physics: J. D. Stewart, M.A.; John S. Morgan, M.A.; G. O. Clark, M.A., B.Sc.; James W. Collie, M.A., B.Sc. Day courses: Preliminary Scientific, Chemist and Druggist Qualifying, and Pharmaceutical Chemist Qualifying examinations, and Intermediate and Final examinations for the Degree of Bachelor of Pharmacy of the University of London, Bachelor of Pharmacy of the University of London, October 13, 1931, to June 30, 1932. Fee: Each course, £21. Evening Preliminary Scientific course over four years. Fee: Each stage, £2.

### Dundee Technical College and School of Art

Heads of Departments;—Botany and pharmacy: D. (cCall, B.Sc., Ph.D., Ph.C. Assistants; W. B. McCall, B.Sc., Ph.D., Ph.C. Assistants: W. B. Proudfoot, Ph:C., and Miss Isabella S. McNicoll, B.Sc. Chemistry: C. W. Cochrane, D.S.O., B.Sc. Assistant: W. S. Liddle, B.Sc. Students are prepared for all examinations of Pharmaceutical Society of Great Britain and for degree of B.Pharm. of London University. Classes begin September 21. Evening classes in botany, chemistry and physics on September 7. Fees: Day classes, £22 Is.; evening classes, £1 to £1 Ios. per session. Assistants: W. B.

### Edinburgh, Heriot-Watt College

Principal of College: J. Cameron Small, O.B.E., F.R.S.E. Professor of Chemistry: T. Slater Price, O.B.E., D.Sc., Ph.D., F.I.C., F.R.S. Lecturers: Chemistry: J. Campbell Smith, B.Sc., A.I.C.; James Sandilands, F.I.C., A.H.-W.C.; J. W. Ingham, M.Sc., F.I.C.; W. H. Craven, B.Sc., F.I.C.; R. G. M. Dakers, B.Sc., F.I.C., A.H.-W.C.; Hugh H. Campbell, B.Sc., A.I.C., A.H.-W.C.; Hugh B. Nisbet, B.Sc., F.I.C., A.H.-W.C. Physics: Head of Department: William Watson, M.A., B.Sc. Lecturers: John Milne, B.Sc.; T. G. Malpas. Botany: Andrew Howison, M.A., B.Sc. Pharmaceutics: J. C. Henderson, Ph.C. and W. Martin, M.P.S., F.I.C., and demonstrators. Complete courses of instruction for examinations of Pharmaceutical Society. Pharmaceutical Society.

### Edinburgh, The Royal Dispensary and School of Pharmacy

Principal: Eric Knott, Ph.C., F.C.S., assisted by a fully-qualified and competent staff. Complete courses in the subjects of the Preliminary Scientific examination and the Chemist and Druggist Qualifying examination are provided in the day classes of this school. Fees: Preliminary Scientific examination, six months' course, £21; Qualifying Chemist and Druggist examination, nine months' course, £31 10s. Hours, 9 a.m. till 5 p.m. daily. Evening and part-time classes.

### Glasgow Royal Technical College

Superintendent, and lecturer in botany: Professor David Ellis, D.Sc., Ph.D., F.R.S.E. Assistant lecturer in botany: Miss B. Lloyd, M.Sc., Ph.D. Demonstrator: G. Rattray, Ph.C. Lecturer in pharmacy and pharmacognosy: J. P. Todd, Ph.C. Assistant lecturer: E. J. Schorn, A.I.C., Ph.C. Demonstrators: J. Coutts, Ph.C., N. V. Maxwell, Ph.C. Classes for the Preliminary Scientific, Chemist and Druggist Qualifying and Pharmaceutical Chemist Quali-

fying examinations, and also for the doof B.Pharm., with evening classes for the liminary Scientfic examination, begin in September. Degree course, 90 guineas, in three annual instalments of 30 guineas; other day courses, 20 guineas per annum.

Paisley Technical College

Principal: Lewis F. Richardson, D.Sc. (Lond.), F.R.S. Head of Chemistry Department: P. C. Austin, D.Sc., F.I.C. Lecturers:—Chemistry: John Armour, B.Sc. (Lond.); Agnes J. Kelly, B.Sc. (Lond.). Botany: Alex. C. MacLean, B.Sc. (Lond.); Blodwen Lloyd, B. D. M. C. Carles B. D. M. B. C. MacLean, B. Sc. (Lond.). Ph.D., M.Sc.; Gordon Rattray, M.P.S. Physics: J. Denholm; J. C. Young, B.Sc. (Lond.); W. B. Monaghan, B.Sc. Recognised for Preliminary Scientific examina-B.Sc. Recognised for Prelimin tion. Day and evening classes.

### Dispenserships

Official positions as dispensers or "pharmacists" are open to registered chemists and druggists in hospitals, dispensaries and other public institutions as follows:-

MENTAL HOSPITALS.—The rate of pay for dispensing chemists in the London County mental hospital service is:—Men and women at the large hospitals, £270 per annum, rising by £15 annually to £405; women at the Maudsley Hospital and The Manor, £220, rising by £10 annually to £250, and then by £12 10s. annually to £300. Annual leave of eighteen working days, rising to twenty-four after twelve years' service, is allowed. For the dispensing chemists at The Manor and the Maudsley Hospital respective number of days is twelve and eighteen.

NAVY.—The Pharmaceutical Service consists of the following grades: (a) Head pharmacist; (b) superintending pharmacists; (c) senior pharmacists; (d) pharmacists. The age of pharmacists on entry must not be less than twenty-one nor more than twenty-eight years. Candidates must possess certificates that they hold either the Major or the Minor qualification of the Pharmaceutical Society of Great Britain or the certificate of competency granted by the Pharmaceutical Society of Ireland, and produce testimonials and a full record of training, qualifications and experience. Candidates chosen by the Medical Director-General of the Navy, Queen Anne's Chambers, Tothill Street, London, S.W.r. will be summoned to interview before a Selection Board; no travelling expenses are payable out of public funds, and each successful candidate is required to pay a fee of  $f_3$ . Members of the Pharmaceutical Service will be required to serve in any of R.N. Hospitals to which Pharmacists will be paid a salary of £120 per annum on entry, rising by £5 annually to £170. They will also be provided with quarters suitable for unmarried men. When such quarters cannot be provided, an allowance of £35 a year will be granted in lieu.

PUBLIC ASSISTANCE INSTITUTIONS.—Appointments of dispensers under the old poor-law service are now made by boroughs or county councils. Under the Poor Law Order of 1930 such dispensers are not included in the list of principal officers. The salaries vary, each authority fixing its own scale. The positions are open to chemists and druggists and a few other classes of dispensers.

Prison Commission.—The rates of pay and allowances for pharmacists in the prison services are £2 10s. a week, rising to £3 15s., with medical attendance and medicines in certain conditions and a temporary bonus, varying with the cost of living. Quarters are provided, or an allowance is granted in lieu. Candidates for appointment must hold the Pharmaceutical Society's qualification, and it is necessary to be within the prescribed age limits (twenty-four to thirty-five years). There is a probationary period of twelve months at the candidate's own expense.

### reland—I. Free State

THE Irish Free State has from the time of the coming into force of the 1925 Act setting up a pharmaceutical society in Northern Ireland continued the existing pharsociety in Northern freland continued the existing pharmacy legislation, though mention has been made of possible changes. The Acts affecting Free State pharmacy are referred to annually, so far as the sale of poisons is concerned, in *The Chemist and Druggist Diaries*. The principal legislative enactment is the Pharmacy Act (Ireland), 1875, which set up a class of qualified persons, pharmaceutical chemists, to keep open shop for retailing, dispensing and compounding poisons and medical prescriptions. and compounding poisons and medical prescriptions. The amending Act of 1890 brought into existence chemists and druggists and registered druggists on a statutory basis, and introduced a qualification for assistants to pharmaceutical chemists enabling them to transact the business of a shop during their employers' temporary absence. The Irish Pharmacy Acts, 1875 and 1896, differ from the corresponding

differ from the corresponding Acts for Great Britain in that mention is made of the subjects in which candidates for the Licentiate and the Registered Druggist qualification are to be examined—with the addition, in the earlier Act, of "such other subjects as may from time to time be prescribed by any regulations made in pursuance of this Act." The Registrar and Clerk to the Council of the Pharmaceutical Society of Ireland is Mr. James J. Kerr, P.C., M.P.S.I., 67 Lower Mount Street, Dublin.

### Preliminary Examination

This examination must be passed prior to the service in pharmacy required by the Regulations for the Licence examination, unless such service has been commenced before January 1, 1907. The subjects of examination are:—Group A, English, pass Standard, 40 per cent.; Latin, pass Standard, 40

per cent.; mathematics, pass Standard, 40 per cent.; Irish, pass Standard, 30 per cent. Group B, Elementary chemistry, pass Standard, 40 per cent.; elementary botany, pass Standard, 40 per cent.; elementary science, pass Standard, 40 per cent.; a modern language (other than Trish), pass Standard, and per cent.; a modern language (other than Trish), pass Standard, and per cent. Irish), pass Standard, 40 per cent. The standard is that of the Intermediate Certificate syllabus. A viva-voce test will be made in the case of Irish and any modern language other than English. In awarding marks, spelling, handwriting, and neatness of work are taken into account. Candidates must take all the subjects in Group A, also one other subject from Group B. All subjects must be passed at one examination. A candidate who obtains 70 per cent. of the total marks, and not less than 50 per cent, in each subject, shall be awarded a pass with honours. The following certificates may be accepted by the Council of the Pharmaceutical Socity in lieu of the Preliminary examination:—(a) The Matriculation certificate, National University of Ireland; (b) The Matriculation certificate, Queen's University of Belfast; (c) Junior Freshman Term examination, Dublin University; (d) Preliminary examination, Royal College of Physicians and Surgeons in Ireland; (e) The Intermediate or Leaving certificate of the Secondary Education Branch of the Department of Education; (f) Any such examination as shall be deemed by the Council of the Pharmaceutical Society (with the sanction of the Minister for Education) Society (with the sanction of the Minister for Education) as equivalent to the Preliminary Examination certificate

of the said Society. The following conditions shall apply to the acceptance of all such certificates:—(i) A registo the acceptance of all such certificates:—(1) A registration fee of three guineas shall be paid; (2) the certificate must show that the candidate has passed in Irish, English, Latin, mathematics; (3) in all examinations passed after April 1, 1931, the candidate must pass in an additional subject selected from Group B, Preliminary Examination syllabus; (4) all subjects must have been passed at one and the same examination. have been passed at one and the same examination.

The examination is held at 67 Lower Mount Street, Dublin, on the first Thursday and following day in January, April, July and October, at 10 a.m. A fee of £3 3s. must be lodged with the Bank of Ireland to the credit of the Society, and the receipt forwarded to the Registrar (Mr. James J. Kerr, P.C., M.P.S.I.), 67 Lower Mount Street, Dublin, with birth certificate and the name of the optional subject, at least fourteen clear days before the commencement of the examination. The re-examination fee is £2 2s. Copies of examination papers are supplied for a limited period at 3s. a set, post free.

### Pharmaceutical Licence

The qualifying examination for pharmaceutical chemist in Ireland is that of Licentiate. The conditions to be fulfilled before entering upon Pharmaceutical licence upon the

aminations are:

(a) After preliminary registration the person must serve four years as apprentice or assistant with, and in the sole employment of, a pharmaceutical chemist, or a chemist and druggist of Great Britain, or an apothecary, or a firm of legally qualified pharmaceutical chemists, chemists and druggists of Great Britain, or apothecaries in an open shop, and the candidate must spend the business day with his employer. (Provision is made for service with more than one employer, and, for those who have served four years with a chemist and druggist or registered druggist in Ireland, two years' further service with a pharmaceutical chemist or

an apothecary suffices.)
(b) A t t e n d three - months' courses of lectures in theoretical ehemistry and in botany and materia medica, and a three-months' course of practical months' course of practical chemistry (after the lectures in theory) at one or other of

IRISH (FREE STATE) PHARMACY QUALIFICATIONS (IN BRIEF)

### L.P.S.I.

- 1. Pass Recognised Preliminary before apprenticeship.
- 2. Four years' apprenticeship in a pharmacy.
- Courses, in an approved institution, of three months in (a) Theoretical Chemistry, (b) Botany and Materia Medica, (c) Practical Chemistry.
- Pass Pharmaceutical Licence Examination after the age of 21.

### R.D.

- 1. Serve four years as assistant or apprentice.
- 2. Pass Registered Druggist Examination.

### PHARMACEUTICAL ASSISTANT

As for L.P.S.I., but need not be 21, nor have taken courses of instruction.

the following approved institutions: School of the Pharmaceutical Society of Ireland, School of the Pharmaceutical Society of Great Britain, Central Technical Institute, Waterford, Municipal Technical School, Ballymena, Municipal Technical School, Londonderry, Municipal Technical School, Londonderry, Municipal Technical Institute, Limerick, City of Dublin Technical School, School, Drogheda. Municipal Technical Institute, Limerick.
City of Dublin Technical Schools.
Government School of Science, South Kensington.
Queen's University, Belfast.
University College, Galway.
Royal College of Science for Ireland, Dublin.
Royal College of Surgeons in Ireland, Dublin.
School of Physic, Trinity College, Dublin.
Anderson's Medical School College, Glasgow.
Royal Academical Institution. Belfast. Anderson's Medical School College, Glasgow, Royal Academical Institution, Belfast. Municipal Technical Institute, Belfast, Crawford Municipal Technical Institute, Cork. Municipal Technical School, Newry. Central Technical Institute, Clomel. Municipal Technical Schools, Dundalk. Municipal Technical School, Laugan. City, of Calway, Technical Institute. City of Galway Technical Institute. Crawford Municipal School, Cork. University College, Dublin. Trinity College, Dublin.

Some of these are approved for all the subjects, others for one or two subjects only.

(c) The person must be twenty-one years of age.
(d) Declarations and certificates of the foregoing must be lodged with the Registrar when the candidate applies for entry to the Licence examination.

The examination commences on the Monday following the second Tuesday of January, April, July and October, at 10 a.m., and is held in the Pharmaceutical Society's House, Dublin. Candidates must give notice of intention to attend, to the Registrar, fourteen clear days before the date of the examination, and this must be accompanied by a receipt of having paid the fee (£10 108.) into the Bank of Ireland to the credit of the Society. The necessary forms should be procured well in advance. The re-examination fee is £4 4s. The examination, which is written, practical and oral, is in the following subjects:

BOTANY: Recognition of the principal indigenous plants used in medicine, their natural orders, and the characters of their several parts.

MATERIA MEDICA: Recognition of B.P. drugs; their characters, active principles, sources, official preparations, and adulterations.

and adulterations,

and adulterations.

CHEMISTRY: Elementary laws of chemistry and physics, including equations. Recognition of B.P. chemicals, description of the processes by which they are obtained, qualitative analysis (including B.P. tests) and volumetric analysis, and a practical examination in these subjects. (The Council recommends "Text Book of Pharmaccutical Chemistry" (Bentley and Driver).

PRACTICAL PHARMACY: Translation of Latin prescriptions, detection of dangerous doses, and compounding and dispensing. Processes of making and recognition of B.P. non-chemical preparations, and an intimate knowledge of the Sale of Poisons (Ireland) Act, 1870.

#### Assistants to Pharmaceutical Chemists

This examination, instituted as a qualification for assistants left temporarily in charge of the business of a pharmaceutical chemist, is held quarterly, being on the Thursday following the examination for the Pharmaceutical Licence. This permits candidates "referred" at the latter examination to enter for the assistants' examination on payment of a fee of  $\mathfrak{f}\mathfrak{l}$  is. New candidates pay, in addition, a registration fee of £1 is. The re-examination fee is £1 is. The conditions are similar to those of the Licence examination, but the candidate need not be twenty-one years of age, nor have taken a special course of instruction. The subjects are:—

PRESCRIPTIONS: Candidates will be required to read autograph prescriptions, translate them into English, render a correct translation of the directions for use, and detect unusual doses.

PRACTICAL DISPENSING: To weigh, measure and compound medicines, write the directions in suitable language, finish and properly direct each package.

MATERIA MEDICA AND QUALITY OF SPECIMENS: To recognise the Pharmacopœia chemicals in frequent demand, and specimens of roots, barks, leaves, fruits, resins and gums in ordinary use; also to estimate the quality of each specimen submitted, and its freedom from adulteration.

PHARMACY: To recognise the preparations of the Pharmacopæia which are not of a definite chemical nature, such as extracts, tinctures and rowdows and give the preparations.

extracts, tinctures and powders, and give the proportions of the more active ingredients.

The candidates will also be examined in the Sale of Poisons (Ireland) Act.

### Registered Druggists

The subjects of the examination are prescribed by the Pharmacy Act (Ireland) Amendment Act, 1890, and are as follows:-

English orthography and composition.

Arithmetic and the weights and measures of the British Pharmacopœia.

The appearance of properties of the various drugs and chemicals in general use.

The Sale of Poisons (Ireland) Act.

The examination is open to anyone who has served as an assistant or apprentice for not less than four years to a pharmaceutical chemist, chemist and druggist, registered druggist, or licentiate apothecary, keeping open shop, and is held in Dublin on the second Tuesday

of January, April, July and October. Applications for admission, accompanied by the necessary declarations of service and a receipt for £4 4s. placed to the credit of the Society in the Bank of Ireland, must be made to the Registrar at least fourteen days before the dates of the examinations. The re-examination fee is £2 2s.

### II. Northern Ireland

### Preliminary Examination

Qualified proprietors of shops in Northern Ireland will eventually comprise a single class of pharmacists, namely, pharmaceutical chemists, the former grade of druggist registered under the older Irish Act of 1890 (see "Ireland—Free State") being destined to disappear. The Pharmacy and Poisons Act (Northern Ireland), 1925, under which this change is taking place, provides a modified examination for registered druggists who wish to qualify as pharmaceutical chemists; and many have thus secured the higher qualification. The Registers of the Pharmaceutical Society of Northern Ireland conthe Pharmaceutical Society of Northern Ireland contain the names of (1) pharmaceutical chemists, (2) superintendents of bodies corporate entitled to carry on the business of pharmaceutical chemists, (3) chemists and druggists, (4) superintendents of companies entitled to trade as chemists and druggists, (5) registered druggists, (6) superintendents of companies entitled to trade as registered druggists, (7) certified assistants to phar-maceutical chemists, (8) apprentices to pharmaceutical chemists.

Before a student can become apprenticed he must pass a Preliminary examination in English, mathematics, and three other subjects (one of which must be a language) from the following list: Latin, Greek, French, German, Spanish, Italian, Irish, modern history, geography, botany, chemistry, physics or mechanics. The five subjects must have been passed at one, or not more than two, of the following examinations:—The Matriculation examination or the Pharmaceutical Preliminary examination of the Queen's University, Belfast, or any examination of the Queen's University, Belfast, or any examination of the Queen's University as equivalent to these tion accepted by the University as equivalent to these examinations, including the Preliminary examinations of the Royal College of Physicians and Surgeons in Ireland, Educational Institute of Scotland, College of Preceptors, Junior Certificate of the Ministry of Education, Northern Ireland. The majority of candidates will probably take the Pharmaceutical Preliminary examination of the Queen's University, for, although the Pharmaceutical Society of Northern Ireland does not hold its own Preliminary examination, the University authorities in the examination mentioned conduct what is virtually the examination mentioned conduct what is virtually the official examination. Candidates in the first instance must apply to the Secretary of the Pharmaceutical Society of Northern Ireland, 55-56 Scottish Provident Buildings, Belfast, at least one month before the last day of entry for Matriculation. They will be examined on the papers set for the Queen's University Matriculation and must reach the straday set for tion examination, and must reach the standard set for the Pharmaceutical Preliminary, which is below Matriculation standard. An application for the Preliminary certificate of apprentice to a pharmaceutical chemist must be accompanied by £3 3s. Having obtained this, the student will register officially as an apprentice at the Ministry of Home Affairs (fee 5s.). A four-years' apprenticeship to a pharmaceutical chemist or four years with a registered druggist and two years with a pharmaceutical chemist then begins.

### Pharmaceutical Chemists

Under the Regulations there are various transitory provisions wherby persons already in the trade at different stages of advancement when the Act was passed undergo modified conditions of examination.
The last examination for Registered Druggists under the modified conditions was held in June 1930, but apprentices and assistants in business at the passing of the Act may enter for the Licence examination under the modified conditions until June 1932. Full particulars of these may be obtained from the



Secretary. Having satisfied the requirements as to apprenticeship and attendance at approved courses of instruction the candidate under the new Regulations must pass Part I, the subjects of which are botany, chemistry Part I, physics and business methods (or pass the Intermediate examination of the Queen's University, Belfast):—

BOTANY.—The elements of plant morphology and anatomy, physiology classification. Practical examination of plants and preparation of sections for the

microscope.

CHEMISTRY, PART I.—An elementary knowledge of chemical action, laws, valency; non-metals, metals, carbon, methane, ethylene and acetylene; methods of determining carbon, hydrogen, oxygen and nitrogen in organic compounds. Solve simple problems in weight and volume. *Practical.*—Preparation of inorganic substances; qualitative and quantitative (volumetric) analysis.

PHYSICS.—Elementary knowledge of mass, energy and work, solids, liquids, gases; temperature; propagation of light, magnetism and electricity. *Practical*.—

Perform simple experiments on the above.

Business METHODS.—Bookkeeping, including business books required in a pharmacy; double entry; balance sheets; commercial law relating to master and servant, leases, agreements and contracts. A working knowledge of matters likely to arise in pharmaceutical practice relating to licences, insurance, income tax, partner-ship and company trading, elementary principles of adverand salesmanship; tising modern methods of window display; shop-craft, including arrangement of a shop, winheat, ventilation, wall and counter dows, counters. cases and general lay-out.

Having passed Part I at not more than two examinations, the candidate supplies evidence of age, 21, attendance at approved courses in the subjects of Part II as follows. [Alternatively, the candidate may submit to the Board of Examiners evidence that he has passed the examination in all

subjects of Final Part I for the B.Sc. in pharmaceutics of the Queen's University, Belfast, and present himself for oral and practical examinations in pharmacy, practical pharmacy, Latin and prescription-reading. A candidate who fails to satisfy the examiners in any one of these three subjects must present himself in all three subjects at any subsequent examination]:—

Pharmacognosy.—Recognition of B.P. drugs, their sources, characters, active principles, varieties, natural orders, knowledge of B.P. tests of crude drugs or official products.

Pharmacy.—Knowledge of operations requiring heat, disintegration of solid substances, filtration, expression, solution, art of dispensing, manufacture of galenicals.

LATIN AND PRESCRIPTION-READING.—Translation of Latin prescriptions; detection of errors; knowledge of posology; percentages.

Practical Pharmacy.—Perform operations of the B.P. in making galenicals. Compound and dispense medicines.

FORENSIC PHARMACY:—Knowledge of poisons in the fourth Schedule to the Pharmacy and Poisons Act (Northern Ireland), 1925, and conditions relating to keeping, selling and dispensing. Dangerous Drugs Acts and Regulations.

CHEMISTRY, PART II.—General knowledge of B.P. and common alkyl and aryl compounds, adulterations in B.P. inorganic and organic compounds and methods of

determining purity. Practical: Identify specified organic compounds; detect adulterants of B.P. substances; volumetric and nitrometric determinations; methods of preparing more important inorganic and specified organic compounds; alkaloidal determinations.

The examinations are held in June and December, examination fees being £4 4s. for Part I and £8 8s. for Part II. For re-examination, half these fees.

### Irish Educational Institutions

Pharmaceutical Society's Schools

67 Lower Mount Street, Dublin

Director: Chemistry School, Professor H. Norminton, M.Sc. Botany and Materia Medica School, Dr. W. H. Ashmore, L.R.C.P.I., M.D., B.Ch., B.A.O. (N.U.I.), A. F. Collīns, M.P.S.I. Pharmacy Class, Mr. Thomas J. Smith, M.P.S.I., on Mondays and Wednesdays, from 7.30 to 9.30, and the student must attend at least twenty lectures to obtain a certificate. Three sessions commence on Octo-

sessions commence on October I, January I, and April I. Fees: Theoretical chemistry (three months), £I IIS. 6d.; practical chemistry (100 hours), £8 8s.; practice course (three months), past students, £2 2s.; students of other schools, £4 4s.; botany and materia medica (three months), £3 3s.; pharmacy, £4 4s.; students of other schools, £5 5s. Botany and materia medica classes held on Tuesday and Thursday evenings.

# NORTHERN IRELAND PHARMACY QUALIFICATION

(IN BRIEF)

### PHARMACEUTICAL CHEMIST

- 1. Pass recognised Preliminary Examination.
- 2. Serve apprenticeship (a) four years under pharmaceutical chemist or (b) four years under registered druggist and two years under pharmaceutical chemist.
- 3. Attend approved courses in Part I.
- 4. Pass Part I (a) Botany, (b) Chemistry, (c) Physics, (d) Business Methods. Fee £4 4s.
- 5. Attend approved courses in Part II.
- 6. Pass Pharmaeeutical Chemist Examination at age 21 (a) Chemistry (2), (b) Pharmacognosy, (c) Pharmaey, (d) Practical Pharmaey, (e) Latin, (f) Prescription-Reading. Fee £8 8s.

### Belfast Municipal College of Technology

Head of Chemistry Department: Professor H. Wren, D.Sc.; Lecturers in pharmaceutical subjects, C. J. Still, Ph.D., M.Sc., and C. W. Young, Ph.C. Under the coordination scheme with the Queen's University of Belfast students may also obtain the degree of B.Sc. in Pharmaceutics.

### Apothecaries' Assistants

Section 17 of the Apothecaries Act, 1815, enacted that an examination should be instituted for the purpose of granting certificates to persons "to act as assistant to an apothecary in compounding and dispensing medicines." The conditions are as follows:—

(a) The candidate (male or female) must be at least eighteen years of age, (b) A certificate of general education up to the age of sixteen must be produced. (c) A certificate signed by a principal teacher of chemistry at a university, college, technical institute, school of pharmacy, or a secondary school, or by a person possessing a university degree in science, or a fellowship of the Institute of Chemistry, showing that instruction in chemistry has been taken for 200 hours, and that experiments have been performed by the applicant, and (d) a certificate signed by an assistant of the Society holding a public appointment, a registered chemist and druggist, or a registered medical practitioner, showing that instruction in practical pharmacy has been taken for 200 hours and practical work done for nine months, must be produced. (e) The candidate must pass an examination in (1) compounding and dispensing medicines (a practical examination), (2) chemistry, materia medica, pharmacy, and the translation of prescriptions (an oral examination).

Particulars are obtainable from the Registrar, Society of Apothecaries of London, Water Lane, Blackfriars, London, E.C.4. Fee £6 6s.

### Scholarships and Prizes

THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN offers annually three medals for competition by pharmaceutical chemists who have passed the Pharmaceutical Chemist Qualifying examination during the year, and were members or student-associates of the Society at the time of passing. The (written) examination is in materia medica, botany, and chemistry, and is held shortly after the Major examination in April. The first prize is the Pereira silver medal and books worth for ios.; second, the Society's silver medal and books worth £2 ios.; and third, the Society's bronze medal and books worth £2 ios. The Society also has in its gift the following:-

The Jacob Bell Scholarship.—A scholarship of the value of about £56 10s., offered annually by the Society as a memorial of Jacob Beil. The award comprises free instruction at the Society's School, a sum of money and a gift of books. The scholarship, tenable for one or two years in respect of various courses of study at the option of the Bell scholar is aware only to study at the option of the Society.

respect of various courses of study at the option of the Bell scholar, is open only to student-associates of the Society. Details are obtainable from Mr. Hugh N. Linstead, Seeretary and Registrar, 17 Bloomsbury Square, London, W.C.1. The Burroughs Scholarship of £100 per annum, awarded (together with apparatus, etc.) to a pharmaceutical chemist or a graduate in pharmacy of an approved university every fourth year for the purpose of obtaining instruction in the Society's labolatory, and tenable for two years.

The Devon and Cornwall Exhibition in Pharmacy, of the annual value of about £25, is tenable at the University

arnual value of about £25, is tenable at the University College of the South-West, Plymouth, and is applied to the payment of tuition fees. Candidates must have been trained during a specified period in Devon or Cornwall.

Herbarium Prizes.—The Council of the Society offers annually to its student-associates a silver medal, a bronze medal and certificates of honour for an behaviour of British

medal and certificates of honour for an herbarium of British

medal and certificates of honour for an herbarium of British plants collected in any part of the United Kingdom, the Channel Islands or the Isle of Man between January 1 in one year and July 1 in the following year.

The Charles James Hewlett Memorial Exhibition is of the value of about £15, and is awarded annually on the recommendation of the dean of the Society's School to the student-associate (other than a Bell scholar) who most distinguishes himself during attendance at the first year of the course for the Pharmaceutical Chemist Qualifying examination or for the B. Pharm. degree.

Leverhulme Scholurships.—A fund endowing three scholar-

Leverhulme Scholarships.—A fund endowing three scholarships of the annual value of £60 each was presented to the Society by the late Lord Leverhulme in 1923. Students between the ages of nineteen and twenty-two who have completed the period of practical training for the Qualifying examination are eligible. The first scholarship carries with it a gold medal and £5 worth of books, and the second

a prize of books to the value of £5.

The Manchester Phurmaceutical Association Scholarship is open to student-associates of the Pharmaceutical Society who have served an apprenticeship in Lancashire, Cheshire, or the High Peak Parliamentary Division of Derbyshire. It

or the High Peak Parliamentary Division of Derbyshire. It has an annual value of about £34.

The Petric Trust Bursury, of the annual value of about £16, is awarded each year to a student-associate of the Society who has completed three years' apprenticeship in the city or county of Aberdeen, and has not previously studied at a school of pharmacy.

The Rammell Studentship, of the value of £100, is tenable for a year by a member of the Society in the Society's Pharmacological Laboratories.

The Ranson Research Fellowship of the value of £100 per the school of the school of the value of £100 per the school of the school of the value of £100 per the school of the school of the value of £100 per the school of the school of the value of £100 per the school of the school of the value of £100 per the school of the school of the value of £100 per the school of the sc

The Ransom Rescarch Fellowship, of the value of £100 per annum and tenable for two years, was founded in 1917 to promote the investigation of erude drugs, and is awarded to

promote the investigation of crude drugs, and is awarded to a pharmaceutical chemist, or a graduate in pharmacy of an approved university.

The Redwood Scholarship, of the value of £100 per annum and tenable for two years, is awarded every fourth year (together with apparatus, etc.) to a pharmaceutical chemist to obtain instruction in the Society's research laboratory.

Until further notice, the Jacob Bell, Manchester and Leverhulme scholarships and the Devon and Cornwall exhibition will be awarded in accordance with the following regulations:

1. There shall be one examination for all the scholarships, which will be conducted by an examiner or examiners appointed by the Council of the Society, and the awards

made by the Council on the recommendation of such

examiner or examiners.

2. The examination will be held on the third Tuesday in June of each year in Aberdeen, Birmingham, Cardiff, Edinburgh, Exeter, Leeds, London. Manchester and Newcastle, or such other centres as may from time to time be selected by the Council of the Society.

3. At the time of giving notice of their intention to enter for the examination, competitors must be student-associates of the Society.

4. No person shall be awarded more than one scholarship, but a person may compete for all the scholarships for which he is eligible at the same examination. Should he gain marks entitling him to the award of more than one scholarship he will be permitted to select the scholarship he wishes to have awarded to him.

5. On the day on which the examination is held, competitors must be not less than nineteen nor more than twentytwo years of age.

6. Competitors must give notice to the registrar in London on or before June 1 in the year in which the examination is to take place. The notice must be accompanied by a registrar's certificate of birth, an employer's testimonial, and a declaration as to practical training. At the same time the competitor must state (a) the language subject in which he wishes to be examined, and (b) the examination centre at which he wishes to attend.

THE PHARMACEUTICAL SOCIETY OF IRELAND. — The Council awards annually a gold and a silver medal to pharmaceutical chemists who have during the year passed the Licence examination on a first attempt and obtained the following standard of marks: For the gold obtained the following standard of marks: For the gold medal, not less than 240 marks out of 300, and 65 in each of the three subjects; for the silver medal, 230 marks out of 300, and 60 in each of the three subjects.

The Chemists' and Druggists' Society of Ireland.—The Haslett Gold Medal is awarded annually to the student who takes the first place at the

Pharmaceutical Society of Ireland's Registered Druggist examination.

The Farchild Scholarship, which was founded in 1904 by Fairchild Brothers & Foster. The object of the scholarship is to encourage study during apprenticeship. The examination is designed not as a test for completed studies, but to see how far the student has used his time and powers of observation during apprenticeship so as to fit himself or herself to appreciate fully the subsequent course of study. The value is £60, and, in addition, there are prizes of £5 for the best student in England, Scotland, Wales and Ireland, apart from the scholarship. The examinations take place during June, and entries should be made on, or before, June 1. The examinations are held in London, Manchester, Edinburgh, Cardiff, Dublin and Belfast, the amount over 5s. railway fare being refunded if application is made to the Secretary. The age limit is not less than twenty years on July 1, 1932, or over twenty-two on January 1, 1932, and all competitors must be registered students or apprentices of pharmacy. The successful student must commence his pharmacy. The successful student must commence his studies within the year after winning the scholarship. The subjects are: Chemistry; physics; botany; practical pharmacy and prescription reading; business knowledge. The trustees are Mr. Peter Boa, Edinburgh; Mr. Albert Hagon, Cardiff; Mr. William Kirkby, Manchester; Mr. A. J. Phillips, London. All communications should be addressed to the Secretary to the Trustees, Mr. Herbert Skinner, Ph.C., Albert Chambers, 64:65 Holborn, Viaduet, London, E.C.

Chambers, 64-65 Holborn Viaduct, London, E.C.I.
THE KINNINMONT PRIZE.—Instituted in 1894 by the late Alexander Kinninmont, Ph.C., for pharmacy students in Glasgow and the West of Scotland. The prize, a scholarship of the value of £10 10s., tenable at the Royal Technical College, Glasgow, is awarded on the result of a written examination in chemistry, botany and physics, held in Glasgow in September of each year.
"Corner for Students" Prizes. — The Chemist

AND DRUGGIST conducts a monthly competition in qualitative chemical analysis. The next series of competitions, which commences in October, will give students of chemistry excellent practice in manipulation and deduction.

### Medicine

A table in the Medical Register discloses the fact that nearly 2,000 names are added to it annually; the net addition, of course, is considerably less. At least threefourths of those who qualify, it is estimated, become general practitioners. Medical training is costly, the period of waiting for a satisfactory income is sometimes long, and working expenses are usually high; but the profession is not overcrowded, as many and perhaps most professions are. Medical men who desire to specialise can find openings; and careers in the Forces, in the public service and in hospitals have their attractions. Of late years there has sprung up a class of doctors sometimes described as "general practitioner specialists," who find a remunerative vocation in large industrial centres.

The General Medical Council, the examining, registering and disciplinary body set up by the Medical Act, 1858, makes periodical inquiries among the recognised colleges and other bodies as to courses of study and examinations. Candidates for the profession are required to possess, at the outset, a general education of the standard needed for matriculation in arts or science at a British university, together with evidence of having passed an approved examination in elementary physics and elementary chemistry and of having commenced medical study, and, after registration as medical students, to take a course of study and training, extending to at least five years, at a recognised institution. There are two types of medical qualification, the degrees bestowed by the universities and the diplomas given by such bodies as the Royal Colleges of Physicians and Surgeons.

### Preliminary Examinations

The education committee of the General Medical Council issues a list of examining bodies, the examinations of which in general education fulfil the conditions laid down by the Council as to admission as a medical student (see "Registration as Medical Students"). These examinations include (1) the final arts or science degree examination of any university of the United Kingdom or of the British Dominions; (2) the matriculation examination of any university in Great Britain or of certain examining bodies in Ireland; (3) a number of school and other examinations accepted by approved universities as equivalent to their respective matriculation examinations. Any preliminary examination must include: (1) English; (2) elementary mathematics; (3) a language, from a selected list, other than English; (4) a second language from the list or one of the following subjects: higher mathematics, history, geography, chemistry, physics, zoology, botany, biology, geology. A Joint Matriculation Board (Secretary, 315 Oxford Road, Manchester) governs the botany, Matriculation examinations of the Universities of Manchester, Liverpool, Leeds, Birmingham and Sheffield. The College of Preceptors, Bloomsbury Square, London, W.C.1, holds in March and September of every year, at various centres in Great Britain, a Professional Preliminary examination for certificates recognised by the General Medical Council and other bodies. The fee is 25s., plus a local fee of from 5s. to 15s. A similar examination is held (fee, 21s.) by the Educational Institute of Scotland, 47 Moray Place, Edinburgh, in February, May, August and November (calendar, 6d.; examination papers, 1s.). The examination centres are Edinburgh, Glasgow, London, Liverpool and Dublin. The subjects which are compulsory and those which are optional differ to some extent in the requirements of the various universities and other qualifying bodies; consequently, the candidate must either matriculate at the university at which he or she intends to study or ascertain that the Preliminary examination certificate held is one that will be accepted.

### Registration as Medical Students

The way of entrance to the medical profession is laid down in "Regulations of the General Medical Council in Regard to the Registration of Medical Council Students'' (Is., post free from the Period Students'' (Is., post free, from the Registrar, 44 Hallam Street, London, W.1).

The following is a summary of the regulations:-

(1) Before registration as a student every candidate shall produce evidence that he has attained the age of seven-

(2) The minimum standard of general education required will be that of University matriculation or entrance examination in arts or pure science.

(3) Before registration as a student every applicant shall be required to have precedent examination.

(3) Before registration as a student every applicant snan be required to have passed an approved examination in general education (see "2"), and, in addition, an examination in elementary physics and elementary chemistry conducted or recognised by one of the licensing bodies.

(4) A student who has diligently attended an approved course of instruction in elementary biology at a secondary school or other teaching institution recognised by a licensing

school or other teaching institution recognised by a licensing body may be admitted to the Professional examination in elementary biology, if that body sees fit, immediately after his registration as a student,

The commencement of the course of professional study recognised by any of the licensing bodies should before the date of registration. The Registrars to whom, according to the division of the United Kingdom in which the student is training, application must be made for registration are:

The Registrar of the General Medical Council, 44 Hallam Street, Portland Place, London, W.I.

The Registrar of the Scottish Branch Council, 12 Queen Street, Edinburgh.

The Registrar of the Irish Branch Council, 35 Dawson Street, Dublin.

The Registration Office for the Irish Free State is Room 123, Custom House, Dublin.

The General Medical Council enjoins that in every course of professional study and examination, which must occupy not less than five academic years, the following subjects shall be comprised:—

following subjects shall be comprised:—

(1) Elements of General Biology, including practical work and an introduction to the study of embryology; (2) Chemistry, Physics, and Biology in their application to medicine; (3) Human Anotomy and Human Physiology, including dissection, histology, elements of human embryology, biochemistry and biophysics; (4) Elementury Bacteriology; (5) Pathology; (6) Pharmacology and Materia Medica, including pharmacological chemistry; (7) Forensic Medicine, Hygiene, and Public Health; (8) Medicine, including applied anatomy and physiology, clinical pathology, and therapeutics, (9) Surgery, including applied anatomy and physiology, and clinical pathology; (10) Midwifery and Diseases of Women.

A few bodies allow medical studies to be commenced at approved teaching institutions other than medical schools, and this principle is extended to graduates in arts or science at approved universities. No general exemption of this kind is given to registered chemists and druggists except as regards training in practical pharmacy. The Preliminary examination must have been of the standard given in the regulations, but the colleges and universities consider applications for exemption from any part of the medical examinations when such subjects as chemistry and biology have been taken at recognised institutions. Each examining body issues regulations as to the studies required, and the schools of medicine arrange their courses in conformance with such requirements.

### **University Degrees**

In the following paragraphs we indicate concisely the conditions framed by the universities of the places named for degrees in medicine and surgery (M.B., Ch.B., or the equivalent degrees). For other and Ch.B., or the equivalent degrees). higher degrees further courses of study and fees are requisite.

ABERDEEN.—The two degrees are conferred together, and cannot be taken separately. The curriculum extends over a period of not less than five years, during which the candidate must attend the prescribed courses of instruction. The fee for the two degrees is £34 138., payable in four instalments. Bursaries, scholarships and fellowships to the annual value of £1,200 are obtainable. Further information may be obtained from obtainable. Further information may be obtained from the Secretary, or from the University Press.

Belfast.—Three academic years at least, out of the

five prescribed for the curriculum, must be passed in the University. The examination and graduation fees amount to £24 3s. The Dean of the Faculty of Medicine is Professor W. J. Wilson, M.D.

BIRMINGHAM.—The course extends over six years, and

there are five examinations. Several scholarships are available. As a rule, the first four years of the course must be spent in the University, the minimum being three years. Dean of the Medical Faculty, Professor J. C. Brash, M.D., University Medical Buildings, Edmund Street.

Bristol.—There are three examinations, the total fees for qualifying (including graduation fee) amounting to about £28. The curriculum occupies six years, three of which must have been passed in Bristol. Particulars of scholarships and prizes are given in the University (Faculty of Medicine) prospectus. Secretary, Miss

Winifred Shapland. Cambridge.—Students who have not graduated in Arts are required to pass the Prcvious examination or its equivalent before proceeding to the three examinations for the M.B. degree. The respective fees for these three examinations are £5 5s., £6 6s., and £10 ros. The degree fees amount to £8. A thesis must be composed by each candidate, and must be publicly read (or such portion of it as the Regius Professor shall direct) by the author. There is no separate examination for the B.Chir. degree. The Registrary is Mr. E. Harrison, M.A.

Dublin.—Candidates for the degrees in medicine, surgery and obstetric science must be of B.A. standing and must have completed five years in medical studies. The degree fees amount to £17. Dean of the Faculty of Physic, Dr. A. F. Dixon.

Durham.—There are four examinations for the M.B., B.S. degrees, and the course of study extends over five years, one of which must be spent at the University's College of Medicine. The fees for matriculation and examination amount to £35 3s. Numerous scholarships and prizes are offered. Full information may be obtained from the Dean of the College, University of Durham College of Medicine, Newcastle-upon-Tyne.

EDINBURGH.—The course for the degree of M.B. and Ch.B., which are not conferred separately, extends over five years. Candidates must attend for not less than three years at a recognised hospital. There are four examinations, the fees amounting to £34 13s. Several scholarships, bursaries and prizes are offered for compe-Dean of the Faculty of Medicine, Professor Sydney Smith, M.D.

GLASCOW.—There are four examinations. The period of study prescribed is five years, with specific regulations as to the lengths of the various courses of instruction. The fees (after registration) for the degrees of

M.B., Ch.B., amount to £34 13s. Several bursaries and prizes are open to competition. The Dean is Professor Andrew Hunter.

IRELAND.—The National University of Ireland confers the M.B., B.Ch., and B.A.O. degrees (simultaneously) after passing four examinations during a minimum period of five years' study. Particulars may be obtained from the Registrar, National University, Dublin.

LEEDS.—There are three examinations, and the course of study extends over five years. Attendance at approved courses of instruction is obligatory. The matriculation, examination, and conferment fees amount to  $f_{35}$ . Dean of the Faculty of Medicine, Professor J. K. Jamieson, M.B., C.M.

LIVERPOOL.—The curriculum extends over six years, two of which must be passed in the University. There are three examinations, with a fee of £5 each, and an admission-fee of £5. Several fellowships, scholarships fessor W. J. Dilling.

London.—The normal course of study extends over five and a half years, and three examinations, and prizes are available. Dean of the Faculty, Pro-

## To qualify as a MEDICAL PRACTITIONER

- (1) Pass recognised preliminary and pre-medical examinations.
- (2) Produce evidence of having commenced study at an approved institution, and be registered as a student by one of the Registrars of the General Medical Council.
- (3) During a curriculum of not less than five years, pass, at proper intervals, the necessary examina-

APPERENT PROPERTY PRO

there are three examinations, the second of which is divided into two parts. The examination fees for the double degree amount to £31 10s. A large number of institutions in the United Kingdom and the Colonies are recognised for teaching and giving certificates, and various concessions are granted in respect of examinations already passed at recognised institutions. There are several studentships and research grants available. Internal and external students should apply respectively to the Academic Registrar and the External Registrar, University of London, South Ken-

sington, S.W.7.

Manchester.—Four examinations for the two degrees, after study extending over five years and nine months, must be passed. Two of these years must be spent in the University. Several scholarships, exhibitions and other competitive prizes are offered to students. Examination and

conferment fees amount to £42. Full information is obtainable from Professor Raper, Dean of the Medical School (as to classes) and the Registrar (as to examinations).

Oxford.—The regulations stipulate that candidates must hold an Oxford Arts degree as a prerequisite. Two examinations are held (after a preliminary examination in natural science) for the degree of B.M.; the degree of B.Ch. is granted with that of B.M. after passing the second examination. The minimum time in which the degrees can be obtained is about six years from the commencement of "residence." The Dean of the School of Medicine is Dr. E. W. Ainley Walker, Department of Medicine, University Museum; and the examination statutes are published by the Oxford University Press.

St. Andrews.—The course for the M.B., Ch.B. degrees (which are not separable) extends over at least five years, and the prescribed order of studies must be followed. There are four examinations, the fees amounting to £34 13s. Dean of the Faculty, Professor James Charteris, M.D., Medical School, Dundee; Secretary of the University, Mr. Andrew Bennett.

Shefffeld.—There are four examinations for the M.B., Ch.B. degrees, the curriculum occupying six academic years. Candidates who are referred in the



Final examination (Part II) must produce evidence of having received subsequent instruction satisfactory to the Faculty before entering for re-examination. Several scholarships are available. Dean of the Faculty, Professor J. S. C. Douglas; Registrar of the University, Mr. W. M. Gibbons, M.A.

Wales.—The course of study is divided into two

parts, each extending over three academic years. A degree, in science or arts, of some approved university, is necessary before the medical degrees can be conferred. Examination fees are £20 10s. The constituent colleges are Aberystwyth, Bangor, Cardiff and Swansea. Dean of the Faculty, Professor A. W. Sheen, M.S.; Secretary, Mr. J. James, M.A., University College, Cathays Park, Cardiff.

## Medical and Surgical Diplomas

M.R.C.S.ENG. AND L.R.C.P.LOND.

The Examining Board of the Royal College of Physicians of London and the Royal College of Surgeons of England (known as "the Conjoint Board") grant a joint diploma (the "Double Board '') grant a joint diploma (the "Double Qual.'') for registration as a general medical practitioner. There are two professional examinations (in addition to the Preliminary examination and Premedical examination) during the formation of the first property of the formation of the first property of the formation of the first property of the first medical examination) during the five years' curriculum subsequent to registration as a medical student. The Pre-medical examination of the Board now includes elementary biology as well as chemistry and physics

(total fees, £4 4s.).

The subjects of the First Professional Examination are:

--Section I, (a) Anatomy, including histology and embryology: (b) Physiology, including biochemistry. Section II, ology: (b) Physiology, including biochemistry. Section II, Pharmacology and materia medica. Candidates may present themselves for the two sections together or separately, but they must take Parts (a) and (b) of Section I together until they have passed in one or both par's. Candidates will not be allowed to pass in one part unless they obtain at the same time at least half the number of marks required to pass in the other part. Section II may be passed at any time before the candidate enters for the Final examination. Before admission to the First, examination, candidates must produce evidence of enters for the Final examination. Before admission to the First examination, candidates must produce evidence of having attended:—For Section I: (1) Courses of instruction in anatomy, including embryology, during five terms, during which they must have dissected the whole body; (2) courses of instruction in physiology, including biochemistry and biophysics, during five terms; (3) a course of instruction in histology. For Section II: Courses of instruction in pharmacology and materia medica. The fee for the whole examination is £10 10s.

The subjects of the Final Professional Examination are:—Section I, Pathology (including morbid anatomy, morbid histology, and clinical pathology) and bacteriology.

—Section I, Pathology (including morbid anatomy, morbid histology, and clinical pathology) and bacteriology. Section II, Fart I, Medicine, including medical anatomy, forensic medicine and public health. Part II, Surgery, including surgical anatomy and the use of surgical appliances. Part III. Midwifery and gynæcology. They will be required to produce evidence of having completed courses of study in pathology (including morbid anatomy and histology), post-mortem work, clinical pathology, bacteriology, clinical medicine, practical surgery, forensic medicine, mental diseases, public health, anæsthetics, midwifery and gynæcology, applied anatomy and applied physiology, and operative surgery. Certificates of having received certain specified hospital instruction must also be presented. Re-examination in referred subjects cannot take place within three months of the date of rejection. The fees for this examination amount to £31 10s. Candidates commencing their studies after July 31, 1931 are required to pass in all the subjects of Section II of the Final examination within a period of twenty-five months.

twenty-five months.

Special regulations are provided for cases in which students have passed examinations in certain subjects clscwhere. Synopses of the examination can be obtained from Mr. H. H. Rew, Secretary of the Examining Board, 8-11 Queen Square, London, W.C.1.

#### SCOTTISH TRIPLE QUALIFICATION

The Royal Colleges of Physicians and Surgeons of Edinburgh, with the Royal Faculty of Physicians and

Surgeons, Glasgow, grant three diplomas ("Triple Qual.") jointly entitling the holder to registration as a general medical practitioner. The four examinations are held in Edinburgh, Glasgow, or both cities. The course of study must occupy not less than five years, and the examination fees amount to £30. Full particulars may be obtained from Mr. D. Thomson, 49 George Square, Edinburgh, or Mr. W. Hurst, 242 St. Vincent Street, Glasgow.

## IRISH QUALIFICATION

Particulars of the examination of the Irish Conjoint Board for the licences in medicine, surgery and mid-wifery may be obtained on application to Mr. Alfred Miller, Royal College of Surgeons, St. Stephen's Green, Dublin. Examination fees for the three examinations amount to £44 2s., and the Final examination cannot be taken within three academic years of passing the First examination.

## LONDON APOTHECARIES' DIPLOMA

The Society of Apothecaries of London grants a diploma (L.M.S.S.A.) in medicine, surgery and midwifery. The Final examination is held monthly, except in September, and comprises:—(a) Principles and practice of surgery, including surgical pathology, surgical anatomy, operative manipulation, instruments and appliances. (b) Principles and practice of medicine, including therapeutics, pharmacology, pathology, bacteriology and morbid histology. (c) Midwifery, gynæcology, diseases of new-born children and the use of obstetric instruments. (d) Forensic medicine, hygiene, mental diseases, and the theory and practice of vaccination. The examination is partly written partly processed. tion. The examination is partly written, partly practical, partly clinical and partly oral. The minimum period of medical study extends over five years. The course of study includes attendance on the surgical and medical practice at a hospital connected with a medical school for a period of three winter and three summer sessions. The fee for the Pre-Medical examination is £5 5s., and for the Licence £21, which may be paid in two instalments. Application may be made to the Secretary, Society of Apothecaries of London, Water Lane, E.C.4.

#### DUBLIN APOTHECARIES' DIPLOMA

The Apothecaries' Hall of Ireland grants a diploma (L.A.H.) to candidates who pass the requisite examinations. There are two examinations, with a fee of £21 for each, and a diploma fee of £5 5s. Particulars may be obtained from the Registrar of the Apothecaries' Hall, 95 Merrion Square.

#### Medical Schools

The following are the principal medical schools in the United Kingdom: -

LONDON

The following medical schools are constituents of the.

London University:—

Charing Cross Hospital Medical School, Chandos Street, W.C.2.—The entrance fee varies. Annual fee, f39 18s. Several scholarships and prizes are available. Dean, Mr. Eric A. Crook, F.R.C.S., Secretary, Mr. Wyndham Edwards.

Guy's Hospital Medical School, London Bridge, S.E.I.—The fees for a five-years' course amount to approximately £245. Several scholarships are obtainable by students, and a residential college (facing the hospital) is open. Communications should be addressed to the Dean of the School

to the Dean of the School.

King's College, Faculty of Medical Science, Strand, W.C.2.—Students are prepared for the first two medical examinations of the University of London or other universities, or the first two of the Conjoint Board. Fees: First M.B. or first conjoint course, 136 15s. per annum; courses for second examination, £42 per annum. Scholarships and prizes exceeding £600 in value are awarded annually. Dean of the Faculty, Professor D. M. Blair, M.B.

College Hospital Medical School, Denmark King's College Hospital Medical School, Denmark Hill, S.E.5.—Composition-fee for the University of London course or the Conjoint Board course, £210; this fee includes three years' tuition at King's College and three years at the Hospital. Scholarships of a total value of £1,500 are offered annually. Dean, Dr. H. Willoughby Lyle. The calendar may be obtained on application to the Secretary, Mr. S. C. Ranner, M.A. London Hospital Medical College, Turner Street, E.I.

London Hospital Medical College, Turner Street, E.I.

—Entrance fee, £21; annual fee, £42. Scholarships open to competition, and numerous prizes in various subjects. Dean, Professor W. Wright, D.Sc., M.B.; Secretary, Mr. E. J. Burdon.

London (Royal Free Hospital) School of Medicine for Women, Hunter Street, W.C.I.—The fee is £50 per annum throughout the course of study—M.B., B.S., or the Conjoint Board qualification. Dean Miss Elizabeth Bolton, M.D., M.S. A list of scholarships (total annual value, £7, 200), and other posticus. ships (total annual value, £1,350) and other particulars may be obtained from the Warden and Secretary.

Middlesex Hospital, Union Street, W.1.—The school,

which includes the Bland-Sutton Institute of Pathology, the Courtauld Institute of Biochemistry, the Ferens Institute of Otology and the Barnato-Joel Research Laboratories, is fully equipped for teaching the entire medical curriculum; special courses are given in the higher degrees and diplomas, particularly the Primary F.R.C.S. Eng., the D.P.H., and the Cambridge diploma in radiology. Special attention is given to the co-ordination of the work in the laboratories with that in the wards. Entrance-fee, £25; five annual instalments of £45; thereafter at the rate of £23 per annum until qualified. Two entrance-scholarships, value £100 each, and two university scholarships, value £90 and £60 respectively are awarded annually. Other scholarships and prizes to the total value of £1,000 are also awarded each year. A prospectus may be obtained, on application, from the Dean of the School, Dr. T. Izod Bennett.

St. Bartholomew's Hospital Medical College, Smithfield, E.C.I.—Composition-fee, £231 (or five annual instalments of £50 8s. each). The total value of the scholarships and prizes awarded annually is over £1,500. Dean, Mr. W. Girling Ball.

St. George's Hospital, Hyde Park Corner, S.W.I. Composition-fee (first year), £36 15s.; (second to fifth years), £42 each. Courses in preliminary and intermediate subjects are taken at King's College or University College. There are several scholarships, exhibitions and prizes. Dean, Dr. A. Feiling.

St. Mary's Hospital Medical School, Cambridge Place,

W.2.—Composition-fee for the curriculum (time limit six years), £205—if paid in four instalments, £215. Entrance-scholarships, together with several studentships and prizes, are awarded annually. Dean, Dr. C. M. Wilson, Scoretary, Mr. R. F. Matthews, R.A.

Ships and prizes, are awarded annually. Dean, Dr. C. M. Wilson; Secretary, Mr. B. E. Matthews, B.A. St. Thomas's Hospital Medical School, Albert Embankment, S.E.I.—There are five entrance-scholarships; other prizes are open for competition. Annual fee, £50. Secretary, Dr. R. J. C. Thompson.

University College Hospital Medical School, University Street, W.C.I.—The composition-fee for the final degree of Conjent Barrd compination covers against the second school of the final degree of Conjent Barrd compination covers against the second school of the

degree or Conjoint Board examination course amounts to £123 7s. 6d. Several scholarships and exhibitions are offered by competition. Dean, Dr. A. M. H. Gray; Secretary, Mr. Richard Sloley.

Westminster Hospital Medical School, 12 Caxton Street, S.W.I.—Entrance-fee, f10 10s.; annual composition-fee (payable in advance), f40. Scholarships and prizes are awarded. Preliminary and intermediate studies are taken at King's College. Dean, Dr. A. S.

Woodwark; Secretary, Major J. Burke.

## OUTSIDE LONDON

ABERDEEN.—University Faculty of Medicine.—The total cost of obtaining the M.B., Ch.B. degrees is estimated at £240, including hospital fees, class fees, and degree fees. Clinical study is available at the Royal Infirmary and other local institutions. Applicants should communicate with the Secretary.

Belfast.—Queen's University of Belfast.—Students are prepared, during a five-years' course, for the degrees of M.B., B.Ch., and B.A.O. The combined class and laboratory fee for four years is £105, payable in four instalments.

BIRMINGHAM.—University Faculty of Medicine.—The minimum cost of obtaining the double degree is estimated at £277. Full information is obtainable at the Dean's Office, Medical Buildings, Edmund Street.

BRISTOL.—University Faculty of Medicine.—The approximate cost of obtaining the conjoint degrees is £263, payable by six annual instalments. The Faculty of Secretary of Secretary and Secretary of Secretary o

also prepares students for the diploma examinations of other licensing bodies.

Cambridge.—Clinical lectures and practical instruc-

tion are given to members of the University at Addenbrooke's Hospital.

CARDIFF.—The University College of South Wales

and Monmouthshire is a constituent college of the University of Wales. Composition-fees for six years amount to £200. Application for particulars may be

made by letter to the Dean of the Faculty of Medicine.

CORK.—University College is a constituent college of the National University of Ireland. The calendar (price 6d.) is obtainable from the Secretary.

DUBLIN.—Royal College of Surgeons' Schools of Surgery are attached to the Royal College of Surgeons. The cost of obtaining the conjoint diplomas is estimated

A syllabus may be obtained from Mr. Alfred Miller, Registrar, Royal College of Surgeons.

School of Physic, Trinity College.—The cost of qualifying amounts to £146 3s. Registrar, Mr. G. L. Allen.

University College.—A constituent college of the National University of Ireland.

EDINBURGH.—University Faculty of Medicine.—The minimum cost of qualification is estimated at £264.

School of Medicine of the Royal Colleges.—The courses of study are suited to University and other qualifications. The minimum cost of education for the triple qualification, including examination fees, is about £180, payable by instalments. Scholarships and bursaries are available.

GALWAY.—University College.—A constituent college

of the National University of Ireland.

GLASGOW.—The University Faculty of Medicine.— The division of studies is similar to that adopted at

The Anderson College of Medicine, Dumbarton Road, W.—Students are prepared for University and other qualifications.

St. Mungo's College, 86 Castle Street.—The total fees payable for preparation for a Scottish or English qualification amount to rather more than £100.

Leeds.—University Faculty of Medicine.—The total cost of education for the M.B. degree is estimated at £370. Dean of the Faculty, Professor J. K. Jamieson.

Liverpool.—University Faculty of Medicine.—The composition and other fees are estimated at £347.

Manchester.—University Faculty of Medicine.—The fees for the training and examination for the M.B., Ch.B. degrees are estimated at £347.

Ch.B. degrees are estimated at £294 7s. Courses are also available for other degrees and diplomas. Particulars will be found in the calendar of the University, or may be obtained (price 3d.) on application from the Registrar.

the Registrar.

Newcastle-upon-Tyne.—University of Durham College of Medicine, Northumberland Road.—The composition-fee for a complete course of lectures and laboratory work at the College is £140, payable in advance. For particulars apply to the Dean.

St. Andrews.—University Faculty of Medicine.—The inclusive fee for five-years' University and clinical courses for the M.B., Ch.B. degrees is £182, payable in instalments. Advisers of Studies. Professor L. Char-

in instalments. Advisers of Studies, Professor J. Charteris, M.D., Dundee, and Professor D. Waterston, M.D.

Sheffield.—University Faculty of Medicine.—A five-years' course is provided for. The composition-fees are estimated at £238, payable in six instalments.

Swansea.—University College.—A constituent college

of the University of Wales. Registrar, Mr. Edwin Drew.

# Dentistry

In our Educational Number of August 20, 1921, we noted the passing of a new Dentists Act, and remarked, 'it is not to be supposed that it will materially lessen the value of the qualifications of dental surgeons. Act, in fact, made dentistry a closed profession; the Dentists Register for the current year gives the proportion of dentists not possessing a degree or diploma as 47.55 per cent., and this ratio will continue to diminish in the same way as that of the pre-1878 dentists. The only other matter that concerns the dental student of the present day is the question whether it is worth while to combine a medical course with the dental curriculum; there are obvious advantages in adding a medical qualification if it is desired to carry on a high-class practice. The administration of the Acts relating to dentistry is entrusted to the Dental Board of the United Kingdom under the authority of the General Medical Council.

## **Dental Training**

The registration of dental students is subject to the following conditions: The candidate must (1) be not less than seventeen years of age, (2) have passed a recognised Preliminary examination (see "Preliminary Examination" under "Medicine") and a pre-medical examination, and (3) have commenced professional study, by pupilage or otherwise. Candidates for a diploma in dental surgery should produce certificates of having been engaged during four years in professional study, and of having received two years' instruction in mechanical dentistry. (A syllabus for students in dental mechanics is issued by the British Dental Association, 23 Russell Square, London, W.C.1.) No portion of practical instruction which is taken prior to the date of registration may be reckoned as a portion of the four years of professional study. It is recommended that instruction in dental mechanics be taken at a recognised dental hospital and school. If any part of such instruction is taken by the candidate as a pupil with a registered dentist, the time required to be devoted to it shall be at least twice the time required for the corresponding instruction taken at a dental school. Application for registration should be made on the appropriate form to the Registrar of the General Medical Council, 44 Hallam Street, London, W.1. No fee is charged for registration as a student. Examination for a degree or licence in dentistry or dental surgery includes the following subjects:-

(1) Chemistry, Physics, and Biology, in their bearing on medicine and dentistry; (2) Human Anatomy and Physiology; (3) General Pathology, including bacteriology; (4) Medicine and Surgery; (5) Dental Anatomy and Physiology, Dental Pathology, Dental Surgery (including orthodontics), Dental Materia Medica and Therapeutics, and Dental Mechanics and Dental Metallurgy; (6) Practical Dental Surgery; (7) Practical Dental Mechanics and Metallurgy; (8) Anæsthetics, general and local employed in dental practice.

Women are not admitted, at present, as students to certain of the dental schools and general hospitals. The L.D.S. of the Royal College of Surgeons of England is usually more valued than a similar qualification obtained elsewhere. The curriculum of the College (the Preliminary and Pre-registration examinations having been passed) is as follows:—

The First Professional Examination consists of (1) dental mechanics, (2) dental metallurgy and the properties of dental materials, and (3) (a) general anatomy and physiology, (b) dental anatomy and physiology, and is held three times a year. Candidates may present themselves for the several parts of the First Professional examination together or separately, but before admission to any part of the examination they must produce evidence of having passed the required Pre-medical examination or a certificate of having been registered as a medical or dental student. Candidates for Part I must give twenty one days' notice in

writing, and forward certificates of having been engaged during a period of not less than two years in acquiring a practical familiarity with the details of dental mechanics and of having attended courses of lectures and practical work. They must also provide themselves with certain instruments. Similar regulations apply to Parts 2 and 3.

The Second Professional Examination consists of (1) general surgery and pathology, (2) dental surgery and pathology, and practical dental surgery. Four months must elapse between the first examination and Part 1 of this examination, and certificates of attendance at certain courses must be produced. Before admission to Part 2, candidates must be certified as having attended studies at a recognised institution for two years,

The fees for the pre-medical and diploma examinations amount to £24 3s., payable by instalments. Inquiries should be addressed to the Director of Examinations, Examination Hall, Queen Square, London, W.C.r. Similar conditions apply to the qualifications of the following colleges:—

ROYAL COLLEGE OF SURGEONS, EDINBURGH.—The course of study must occupy at least four years, and not less than three years must be spent at a recognised school. The subjects are taken in three examinations. The examination fees amount to £18 18s. Information may be obtained from Mr. D. Thomson, Clerk to the College, 49 George Square.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW.—The general regulations are similar to those obtaining at Edinburgh. Candidates for the licence must be twenty-one years of age. The fees, including that for the Registration examination, amount to £19 19s. Particulars are obtainable from Mr. W. Hurst, Secretary of the Faculty, 242 St. Vincent Street.

ROYAL COLLEGE OF SURGEONS IN IRELAND, St. Stephen's Green, Dublin.—There are three examinations, with fees amounting (including diploma fee) to £21. The Registrar will furnish particulars on application.

#### University Degrees and Diplomas

Belfast.—Five years' study is compulsory tor students for the degree of B.D.S., and four years for candidates for the licence diploma. Examination and degree fees amount to £19 19s.; examination and diploma fees to £14 14s. Regulations and other information may be obtained from the Secretary to the General Board of Studies, Queen's University.

BIRMINGHAM.—The course for the diploma (L.D.S.) occupies four years. The B.D.S. degree cannot be conferred until twelve months after the diploma (or that of an approved body) has been obtained.

Bristol.—The curriculum for the degree extends over five years, with exemptions in favour of students holding an approved certificate in certain subjects. Study for the diploma must occupy four years. There are four examinations for the degree and four for the diploma. Secretary, Miss Winifred Shapland.

Dublin.—Four and a half years must be spent in study for the degree of bachelor in dental science, and the B.A. degree is prerequisite. The arts and dental courses may be taken separately or concurrently. Details may be obtained from the Registrar of the School of Physic, Trinity College, Dublin. (See also "Ireland.")

Durham.—The University grants a licence and two degrees in dental surgery. The diploma course occupies four years, and the primary degree course five years. Fees for examinations and licence, £15 10s. Fees for four examinations and B.D.S. degree, £31 16s. Particulars may be obtained on application to the Dean of the College, University of Durham College of Medicine, Newcastle-upon-Tyne.

IRELAND.—The course of study for the B.D.S. degree of the National University of Ireland extends over four years, and there are four examinations. Constituent colleges, Dublin, Cork and Galway. (See also "Dublin.")

LEEDS.—There are three examinations, in addition to a prescribed course of study extending over five years for the degree and four years for the diploma. The matriculation, examination and degree fees together amount to £25 (diploma fees, £24). Dental Warden, Mr. W. S. Thornburn, L.D.S.; Registrar of the University, Mr. A. E. Wheeler, M.A.

LIVERPOOL.—There are four examinations for the degree of B.D.S. or for the licence in dental surgery (L.D.S.). Four years' study is required for the licence and five and a half years for the degree. Degree fees, £16.

Dean of the Medical Faculty, Professor W. J. Dilling.

London.—The degree of B.D.S. is conferred after
matriculation and four subsequent examinations, the matriculation and four subsequent examinations, the third of which is taken in two parts. The curriculum extends over five years, and the examination fees amount to  $f_{27}$  6s. Several schools and hospitals in London and the provinces are recognised for training purposes. For particulars apply to the External Registrar (if an external student; otherwise to the Academic Registrar), University of London, South

Keusington, S.W.7.

MANCHESTER.—The examination fees for the B.D.S. (four examinations), together with the conferment fee, amount to The curriculum ex-£28 7s. tends over at least four years. The diploma course covers four years, with examination and conferment fees amounting to £23 2s. Inquiries regarding examinations should be addressed to the Registrar of the University.

St. Andrew's. — The University grants a diploma in dental surgery (L.D.S.), after four years' study and four examinations. There is also obtainable a diploma in public dentistry, the first of its kind. For particulars apply to Dr. Graham Campbell, Adviser of Studies, Dental Hospital, Park Place, Dundee.

SHEFFIELD. - Five years' study is required for the degree (B.D.S.), and four years' for the diploma. There are three examinations for each.
Registrar of the University,
Mr. W. M. Gibbons, M.A. qualifications, £360. Inquiries should be addressed to the Dean (Professor W. Wright, M.B.).

London (Royal Free Hospital) School of Medicine for Women, Hunter Street, W.C.I.—Courses of study arranged for the B.D.S. of London University and the L.D.S. of the Royal College of Surgeons. Dean, Miss Elizabeth Bolton, M.D., B.S.; Warden and Secretary,

Miss L. M. Brooks.

Royal Dental Hospital of London School of Dental
Surgery, Leicester Square, W.C.2.—The cost of the full course, including the fee at a general hospital and examination fees for the L.D.S. diploma, is estimated at £299. School fees for the London B.D.S. degree amount to £335 19s. Particulars of several scholarships are given in the calendar of the school. Dean, Mr. H. Stobie.

St. Mary's Hospital, Paddington, W.2.-A composition-fee of £73 ios. is charged for a two-years' course of the medical subjects required for the L.D.S. if paid on entry. Dean of the Medical School, Dr. C. M. Wilson; Secretary, Mr. B. E. Matthews, B.A.

- TO QUALIFY AS A DENTIST

  (1) Pass recognised preliminary and pre-medical examinations.

  (2) Register as a student at the Dental Board Office, 44 Hallam Street, London, W.1. Instruction in mechanical dentistry may be taken prior to registration.

  (3) Take a four or five years' curriculum as provided in the regulations.

  (4) Pass, at proper intervals, the requisite examinations for the degree or diploma sought.

Street, W.I. - Compositionfees: L.D.S. four-years' dental course, payable by four instalments, £246; six-years' course, comprising dental curriculum and curriculum for the M.R.C.S., L.R.C.P. diplomas, £416, payable by six instalments. The School is recognised by the University of London. Students are prepared for the University's B.D.S. degree, for which special arrangements as to studies and fees are made. Inquiries should be addressed to the Sub-Dean, Mr. J. L. Dudley Buxton, L.M.S.S.A., L.D.S.

University College Hospital Dental School, Great Portland

Westminster Hospital, Caxton Street, S.W.I.—Fee for general surgical practice and lectures for the R.C.S. dental diploma (payable in advance), £70 (or two payments of £36 each). Dean of the Medical School, Dr. A. S. Woodwark.

## Dental Instruction

The following are the chief schools in the United Kingdom for instruction in the science and practice of dentistry: -

#### LONDON

Guy's Hospital Dental School, London Bridge, S.E.r.—Practical training is provided in the hospital. The cost of a five-years' course for the B.D.S. degree of London University is £339 8s. Cost of L.D.S. training (four years), £280. The course can be extended so as to include medical studentship. The cost of the combined medical and dental course is approximately £440. Particulars may be obtained from Professor T. B. Johnston, M.B., Dean of the School.

King's College Hospital Dental School, Denmark Hill, S.E.5.—Professional instruction is given in association with King's College. Dental students may also attend

with King's College. Dental students may also attend other departments bearing on their work—e.g., those devoted to diseases of the throat. A London degree course costs £274, and a diploma course £256. Dean, Dr. H. Willoughby Lyle; Secretary of the School, Mr. S. C. Ranner, M.A.

London Hospital Dental School, Turner Street, E.I.-Full course (including dental mechanics) for L.D.S. diploma, £240. Six-years' course for medical and dental

#### OUTSIDE LONDON

Belfast.—Queen's University Faculty of Medicine.-The combined class and laboratory fee is £23 12s. 6d. for the first year, and £26 5s. for the second year. Entrance-forms and other information may be obtained by applying to the Secretary to the General Board of Studies.

BIRMINGHAM.—University School of Dentistry.—The courses of instruction qualify also for the diplomas in

dental surgery of all licensing bodies.

Bristol.—University Faculty of Medicine (Dental Surgery).—The inclusive cost of the curriculum is estimated at £273 in the case of the degree, and £250 for diploma students. Communications should be ad-

dressed to the Secretary of the University.

Dublin.—School of Dental Science, Trinity College.— The total cost of obtaining the B.Dent.Sc. degree is given in the regulations as £331 15s. 6d., including arts and dental courses and examination and degree fees. For details apply to the Registrar of the School of Physic.

Royal College of Surgeons Schools.—The College grants a diploma in dental surgery. Cost of tuition, £211; examination fees, £28 7s. Registrar, Mr. Alfred

Dundee.—University of St. Andrews Dental School, Park Place. Composition fees amount to £176 14s. The associated Dental Hospital has been reconstructed and enlarged. Adviser of Studies, Dr. Graham Campbell.

EDINBURGH.—School of Medicine of the Royal Colleges.—Communications should be addressed to Mr. John Orr, Dean of the School, Surgeons' Hall, Edinburgh.

Incorperated Dental Hospital and School, 31 Chambers Street.—General hospital attendance and clinical instruction are taken at the Royal Infirmary. The tuition and R.C.S. Edin. diploma fees amount to £133 8s. If the "triple qualification" (see "Medicine") is taken concurrently, the minimum cost is £212 16s. Dean of the School, Mr. W. Guy, F.R.C.S., L.D.S.; Secretary, Mr. G. M. Stuart, W.S., 20 York Place.

GLASGOW.—Incorporated Dental Hospital and School, 158 Renfrew Street. Estimated cost of curriculum and licence examinations, £219 19s., plus £40 for instruments. Communications regarding the School should be addressed to the Dean, 15 Dalhousie Street.

Leeds.—Dental Department of the University.—The cost of education for the degree of the University is given in the University Calendar as £405 (£366 for the diploma). Registrar of the University, Mr. A. E. Wheeler, M.A.

LIVERPOOL.—University School of Dental Surgery.—Candidates are prepared for the licence (L.D.S. Liverpool), the degree of B.D.S., and the higher degree of M.D.S. School fees for the B.D.S. (five years' training) amount to £250; those for the L.D.S. (four years' course) to £108. Director of Dental Education, Professor W. H. Gilmour, M.D.S.

Manchester.—Denta? Department of the University.—Students are prepared for the B.D.S. of the University, the diploma of the University, or that of the R.C.S. Eng. and other licensing bodies. Before registration shall be considered as complete every student entering on a degree course in the Faculty of Medicine will be required to produce to the dean of the Medical School his Matriculation certificate or certificate of exemption. In the case of a certificate of exemption, the certificate of the examination on which exemption was granted must be produced. The Dean of the Medical School of the University answers inquiries concerning classes.

Dental Hospital of Manchester, Oxford Road, The University, and Manchester Royal Infirmary.—The total fees payable to the University, the Hospital, and the Infirmary for courses of study, the library, and other fees, and the conferment of the degree or diploma are approximately as follows:—For the B.D.S. Manch., £312; for the L.D.S. Manch., £241 10s.; for the L.D.S., R.C.S. Eng., £253. The total fees for women are in each case £1 118. 6d. less. The required outfit in each case (tools, instruments and books) costs about £60 in addition. Dean of the Dental Hospital, Mr. J. H. Mathews, L.D.S.

Newcastle-upon-Tyne.—University of Durham College of Medicine (Dental Department).—Composition fees for the degree amount to about £150; for the diploma to about £135. For particulars apply to the Dean of the College.

Dental Hospital and School, Handyside's Buildings, Percy Street.—Composition fee for dental lectures, demonstrations, and hospital practice, £63. Dean, Mr. J. Coltman, L.D.S., 13 Ellison Place.

St. Andrews.—(See "Dundee.")

Sheffield.—Dental Department, University Faculty of Medicine.—Students are prepared for the degree (composition fees, £250, payable by instalments) or the diploma (composition fees, £220) of the University. Students who do not pay the composition fee are charged a registration fee annually. Registrar, Mr. W. M. Gibbons, M.A.

# Science

Degrees in science and technical diplomas are not outside the reach of the trained pharmacist, provided he can find the necessary time to comply with a curriculum; indeed, a training in pharmacy is a valuable asset to the prospective technical chemist. Chemical science, however, may be divided into two sectionsacademic and industrial—the latter finding favour among those who desire greater pecuniary reward. Students who choose an academic career frequently join the ranks of the teaching profession or take up research work, the latter being the common ground upon which science and industry meet. In the field of the "works" chemist will be found, perhaps, the greatest opportunity of success, provided sound technical knowledge is combined with business ability. Rich rewards in commerce go to those who make things pay, either by saving in production costs, or by being a little in front with improved products. Manufacturers are becoming more and more dependent on the ability of technical chemists, not only to ensure the most economic methods of production, but to evolve means of profitable utilisation of "waste" materials. Positions of eminence in the world of industrial chemistry; however, are not easily attained; prolonged study and hard work are necessary; but, on the other hand, there is ample room at the top for the right men. Many technical appointments in wholesale drug-gists' and hospital dispensaries are half leaves gists' and hospital dispensaries are held by persons possessing pharmaceutical qualifications with B.Sc., or F.I.C., qualifications, or both, in addition. While many students take university degrees after full-time courses it is possible to obtain certain qualifications externally, thus utilising spare time to the greatest possible advan-tage. Scholarships carrying free instruction and maintenance allowance are awarded annually as a result of science examinations held by the Board of Education. The Salters' Institute awards grants in aid to employees (over seventeen years old) in chemical works in or near London who desire to extend their education in chemical industry. Fellowships in research are offered annually. Applications for grants and fellowships should be sent in early in June to the Director, Salters' Institute of Industrial Chemistry, St. Swithin's Lane, London, E.C.4.

## Science Degrees

The regulations for a degree in science of London University require the student to pass three examinations, viz.:—(1) The Matriculation, (2) the Intermediate examination in science, and (3) the Final examination. Regulations are published for (a) internal students who register as such, and follow approved courses of instruction, and (b) external students who are examined without complying with a curriculum.

For particulars of Matriculation, Special University Entrance examination and External examinations apply to the External Registrar, University of London, South Kensington, S.W.7. Regulations for internal students are to be obtained from the Academic Registrar. The new statutes of the University require all external students to register.

The Intermediate examination in science commences on the first Monday in July. An additional Intermediate examination will be held, in London, in the more usual subjects only, commencing on the fourth Monday of November. A candidate must have passed the Matriculation examination not later than the preceding January or June, respectively, or otherwise have fulfilled the conditions of exemption. Candidates are required to pass in any four subjects selected by themselves out of the following: (1) Pure mathematics; (2) applied mathematics; (3) physics; (4) chemistry; (5) botany; (6) zoology; (7) geology; (8) the general principles of biology; (9) geography; (10) military studies; and (11) general physiology. At least one of the four



subjects selected must be taken from among the first three. The fee is £6 6s.

The Final examination for B.Sc. takes place once a The Fmal examination for B.Sc. takes place once a year, commencing on the third Monday prior to the first Monday in July. The B.Sc. degree is obtainable by passing the B.Sc. degree (general) examination in three subjects, or taking the B.Sc. degree (special), an examination of a specialised nature in a principal subject and a subsidiary subject. Successful candidates will be awarded First-class Honours, Second-class Honours, or a Pass Degree. An additional general examination is also held, commencing on the first Monday

amination is also held, commencing on the first Monday in November in the more ordinary subjects. Candidates must have passed the Intermediate at least a year previously, and the Matriculation at least three years previously, and the Matriculation at least three years previously. The fee is £6 6s. There are fifteen prescribed subjects to select from. The degrees Master of Science (M.Sc.), Doctor of Philosophy (Ph.D.), and Doctor of Science (D.Sc.) are also granted.

The English provincial, Irish, Scottish and Welsh universities confer the B.Sc. degree (cum curriculo),

usually three years after matriculation, with examinations at the end of each session.

## Diplomas in Chemistry

The Institute of Chemistry of Great Britain and Ireland conducts examinations for the associateship of the Institute (A.I.C.). A certificate in Branch E (analysis of food and drugs, and water, etc.) is nowadays a necessity to obtain an appointment as a public analyst, and this branch is attractive to would-be pharmacist associates. The Regulations for the admission of students, associates and fellows are obtainable from the Registrar of the Institute, 30 Russell Square, London, W.C.r.

STUDENTSHIP. — Candidates should register at the Institute (sce above) as students at the commencement of their training. They must be British subjects, not less than sixteen years of age, and have passed an approved preliminary examination, and at the time of

application be recommended by a teacher of chemistry at a recognised institution, or a Fellow of the Institute. In the last case an annual report of progress is required.

Annual registration-fee, 10s.
Associateship.—The Examination for Associateship ASSOCIATESHIP.—The Examination for Associateship (A.I.C.) consists of general theoretical chemistry (three papers) and practical chemistry, and occupies six days. Fee, £5 5s. It is open to: (i) Candidates who have completed four years' systematic day course of study in prescribed subjects at an institution approved by the Council; (ii) candidates who in lieu of first year above under (i) have taken two years' full-time study at a secondary school recognised by the Board of Education or had two years' experience in the laboratory of a Fellow of the Institute; (iii) candidates who in lieu of a fourth year have had one year's satisfactory experience under year have had one year's satisfactory experience under a Fellow or in an approved laboratory or works; (iv) candidates who have obtained a degree, including chemistry in the final examination, and have taken a further year's training in chemistry at a university or college or have had two other years' approved experience under a Fellow of the Institute or in an approved laboratory or works. (v) Applications from candidates (over 25 and with at least eight years in practice) who do not comply with the above requirements are also considered. (vi) Applications from candidates (over 30

who have been engaged in the study and practice of chemistry for at least twelve years and attained a responsible position) who do not comply with the above requirements are also considered. The synopsis of the examination for the associateship is as follows:

(a) General Theoretical Chemistry. — Candidates are required to show a thorough aequaintance with the fundamental laws and theories of chemistry, together with the properties and the methods of preparation of the elements and their compounds, both inorganio and organic, and with the application of chemistry in the arts and industries.

with the application of chemistry in the arts and industries. Three papers, any of which may contain questions in inorganie, organic and physical chemistry, will be set.

(b) Practical Chemistry.—Exercises in qualitative analysis and quantitative analysis (both gravimetric and volumetric), including the analysis of alloys, ores, and minerals, and the determination of substances present in minute quantities, as impurities or otherwise, in commercial products. Preparation and purification of well-defined chemical substances. Organic analysis, including the recognition and determination of the elements and of typical groups and radicles, the identification of organic compounds. Gas analysis. The determination of physical constants and the use of physical

stants and the use of physical instruments employed by

chemists.

Candidates are required to satisfy the examiners as to their ability to translate technical literature from French and German into English with the aid of dictionaries.

Admission to the associateship without further examination may be granted to candidates who have obtained certain university degrees with first or second class honours in chemistry, or other diplomas recognised by the Council, with certain limitations as to courses of instruction and training.

Fellowship.—Admission to the Fellowship is open by examination to associates of three years' standing, who are not less than twenty-four years of age. Only in exceptional circumstances will the Council of the Institute consider applications from Associates for election to the Fellowship without examination; and such an Associate will be required

to produce satisfactory evidence that (i) he has carried out original research of sufficient merit; or (ii) he has devised processes or inventions of sufficient merit; or (iii) that having been engaged in important analytical, industrial, consulting or other work of a general or specialised character, he is, in the opinion of the Council, possessed of sufficient knowledge and ability.

The Fellowship examination is more specialised, there being various branches for which the candidates may enter. These are: (A) inorganic chemistry; (B) physical chemistry; (C) organic chemistry; (D) biochemistry; (E) the chemistry (including micoscopy) of food and drugs and water; (F) agricultural chemistry; (G) industrial chemistry trial chemistry.

- SCIENCE QUALIFICATIONS

  (IN BRIEF)

  LONDON B.Sc. DEGREE

  1. Pass Matriculation.
  2. Intermediate Examination in Four Science Subjects. Fee £6 6s.
  3. Final Examination taken at least one year.
  - 3. Final Examination taken at least one year afterwards, and at least three years after Matriculation. Fee £6 6s.

## A.I.C. and F.I.C. DIPLOMAS

- r. Pass approved Preliminary Examination and register as Student while training. Annual Fee 10s.
- After 4 years' day training, Examination for Associateship. Fee £5 5s.
- After a further three years an Examination for Fellowship in a specified branch. Entrance fee £5 5s.

#### Science Schools

Courses of science instruction are available at the following institutions. These in general cover the subjects for London science degrees, courses for the National Certificates in Chemistry awarded by the Board of Education (as to which Rules No. 100, price 2d., is obtainable at the Stationery Office), and for the Institute of Chemistry examinations. The student Institute of Chemistry examinations. The student should ascertain from the secretary of the institution whether the courses available cover the specific curricula for the examinations he intends to enter:-

ABERDEEN.—University.—Degree courses in soience. Robert Gordon's Technical College includes a well-equipped chemical department. Day classes, £6 per term. Evening classes, £1 10s. per session.

ABERISTWITH.—University College of Wales.—Three or

four year courses for degree in science, £20 per session.

Registration fee, £1 per annum.

BANGOR .- University College of North Wales .- Composition fees for a science student amount to £24 ls. per session, including registration and apparatus fees.

BARNSLEY.—Day courses for B.Sc. of Sheffield University,

and in fuel and glass technology.

BARROW-IN-FURNESS.—Technical College.—Day and evening classes in chemistry, botany and physics; fees per session, day classes, £3 3s.

Belfast.—Queen's University.—Complete course of applied

science and technology; £65 3s.

BIRMINGHAM.—University.—Courses in pure science. Cen-Trail Technical College, Suffolk Street.—Evening classes in chemistry, botany and physics. Aston Technical College.—Day and evening courses in chemistry and physics; sessional fees, day £1 to £4, evening 10s. 6d.

Blackburn.—Municipal Technical School.—Day and evening the second of the second of

ing classes are available in chemistry, physics and botany.

Ing classes are available in chemistry, physics and botany.

BOLTON.— *lunicipal Technical College*.— Evening courses in chemistry; fces, 5s. to 10s. per session.

BOURNEMOUTH.— *Municipal College*.— Science courses for B.Sc. London degrees, £17 17s. per session (three terms, day classes). Evening classes in science and technology, 12s. 6d. to £1 per session of two terms.

BRENDER — *Technical College*— Day and evening courses.

Bradford.—Technical College.—Day and evening courses

for University of London degree examinations.

Brighton.—Municipal Technical College.—Day for University of London examinations, including the B.Pharm, degree.

Bristol.—*University.*—Degree courses for B.Sc.; fee, £31 10s. M.Sc., Ph.D. and D.Sc.

BURNLEY.—Day and evening classes are held at the Municipal College in chemistry, physics and botany; fees, £1 1s. to £2 2s. per course.

Bury.—Evening chemistry courses (extending over three years) cost 10s, to 15s, per session.

CAMBRIDGE.—University.—For particulars apply to the

Cardief.—University College of South Wales and Mon-mouth and Technical College.

CORK.—University College.—A constituent college of the National University of Ireland. Courses for B.Sc. degree.

Darlington.—Technical College.—Evening courses in chemistry, physics and botany; 15s. to 25s.

DUNDEE.—University College.—Day classes in botany, chemistry and physics. Technical College.—Central institution for eastern counties of Scotland for technical instruction.

EDINBURGH.—University.—Degree courses for B.Sc. Heriot-Watt College, Chambers Street.—Day courses extending over four years for the B.Sc. degree in technical chemistry, University of Edinburgh, and the B.Sc. degree in chemistry, University of London; also for the diploma of the College in applied chemistry and the associateship of the Institute of Chemistry, Courses for the examinations of the Pharmaceutical Society. Fees from £20 to £31 10s. of the Pharmaceutical Society. Fees from £20 to £31 10s. Evening classes are also held from the end of September to March in organic and inorganic chemistry, applied chemistry and pharmaceutics,

Exeter.—University College.—Degree course in science, Preliminary scientific examination of the Pharmaceutical

Galway.—University College.—A constituent college of the National University of Ireland. Fees, for courses leading to the B.Sc. degree, £4 per session.

Glasgow.—University.—Degree courses in science.

Halifax.—Municipal Technical College.—Day courses in chemistry, physics and dyeing, £15 per session; evening classes, 13s. 6d. per subject.

Huddersfield.—Technical College.—Full-day and evening courses in chemistry physics belany and technological subjects.

courses in chemistry, physics, botany and technological subjects, including manufacture of dyes. Courses for Institute

of Chemistry's examinations. Sessional fees: Day, £12 12s. to £21; evening from 10s, 6d., according to requirements, Hull.—Municipal Technical College, Park Street.—Day, B.Sc. (Lond.) course, £2 2s. to £10 per term; day and evening courses for pharmacists and dispensers, £1 1s. per term. Special courses in agriculture, materia medica, oil extraction, paint and varnish manufacture.

LANCASTER.—The Storey Institute Technical College. Evening or day classes in applied science; fees, 6s. 6d. to 17s. 6d. per session.

Leds.—University.—Degree courses in science; composition fee, £42. Technical College.—Courses for science degrees and National Certificates in chemistry.

LIVERPOOL.—University.—Degree courses in science.

#### LONDON

Imperial College of Science and Technology, South Kensington, S.W.7.—This college includes as integral parts the Royal College of Science, the Royal School of Mines and the City and Guilds (Engineering) College. The pregraduate courses of study lead up to an associateship and B.Sc. degree in biology, botany, chemistry, geology, mathematics, physics and zoology at the Royal College of Science; in mining, mining geology, metallurgy and oil technology at the Royal School of Mines; and in engineering (civil, electrical and mechanical) at the City and Guilds (Engineering) College. Candidates for admission to associateship and B.Sc. courses should have qualified for matriculation at the University of London, and they must satisfy College requirements as stated in the prospectuses. Post-graduate courses and research may be undertaken by qualified candidates in and research may be undertaken by qualified candidates in all the subjects stated, and many others which are detailed in the prospectuses. The post-graduate work may lead up to the diploma of membership of the Imperial College and to the M.Sc., Ph.D., or D.Sc. of the University of London. The fees are £62 10s. per session, except for research, which is £22 10s., and certain post-graduate courses, which are also £22 10s. per session. There are many fellowships, scholarships and prizes available for award. Any of the college prospectuses will be sent free on application to the Registrar, Imperial College, S.W.7.

Battersea Polytechnic. Battersea Park Road, S.W.11.—Degree courses for B.Sc. (University of London) and for A.I.C. The course for full-time day students extends over three years, and for evening students five years. Courses and research may be undertaken by qualified candidates in

A.I.C. The course for full-time day students extends over three years, and for evening students five years. Courses for F.I.C. (branch E.). Evening courses in chemical technology include food and drugs, bacteriology, oils, fats and petroleum technology and photography. Facilities are available for research work.

Birkbeck College, Bream's Buildings, Chancery Lane, E.C.4.—Complete evening courses for University of London science decrees and other evaminations in science. Com-

science degrees and other examinations in science. position-fees for Intermediate or Final science examination,

25 per term, or £12 per session.

Borough Polytechnic, Borough Road, S.E.11.—Courses on foodstuffs, bacteriology, oils, colours and varnishes, printing inks, and laundry industry. Classes in chemistry

are also held.

Chelsea Polytechnic, Manresa Road, Chelsea, S.W.3.—Day and evening courses in chemistry and botany leading to the B.Sc., M.Sc. and Ph.D. Degrees of London University and the A.I.C. (Institute of Chemistry). Special courses for F.I.C. (Food and Drugs). Classes in applied chemistry, hydrogen ion measurements, dyes and drugs, photomicrography, etc. Research in physical, organic and cellulose chemistry. Fees: day, £7 per term; evening. £1 to £3 per session (3 terms).

East London College, Mile End Road, E.1.—Classes in chemistry, mathematics, physics and botany.—Intermediate, Final and Honours B.Sc., and courses for the diplomas of the Institute of Chemistry. Fee, £22 10s. per annum.

King's College, Strand, W.C.2.—Courses are available in the Faculty of Natural Science for students preparing for B.Se. Chelsea Polytechnic, Manresa Road, Chelsea, S.W.3.

Faculty of Natural Science for students preparing for B.Sc.

degree and Institute of Chemistry examinations. Annual fees: Intermediate course, £36 15s.; Final course, £52 10s.

Northern Polytechnie, Holloway, N.7.—The composition fees for the Intermediate and Final B.Sc. courses are: Day, £18 per session; evening, £3 per session. Evening classes in chemistry, botany, physics and photography cost from 20s. to £3 per session.

Royal Holloway College, Englefield, Surrey.—For

Royal Holloway College, Englefield, Surrey.—For women students only, mainly residential. The college is a school of the University of London, and the degree

courses include science.
Sir John Cass Technical Institute, Jewry Street, Aldgate, Sir John Cass Technical Institute, Jewry Street, Alagate, E.C.5.—Evening courses in chemistry, physics, mathematics, microbiology, brewing, malting, zoology, botany and vegetable physiology, metallurgy, mining, geology, and fuel and petroleum technology Sessional fees (September to July): 20s. one evening per week, 35s. two evenings per week, plus 10s. for each additional evening per week.

\*University College, Gower Street, W.C.I.—Fees for B.Sc. (Second and additional evening per week).

(general or special) course for three sessions amount to £147. Facilities for post-graduate study; fee, £29 8s. for two

sessions, and £22 1s. for one session. Reduced fees in the case of honours graduates who have taken their undergraduate curse at the college.

Wandsworth Technical Institute, High Street, Wandsworth, S.W.18.—Day and evening classes in chemistry, physics and botany. Fee for a recognised course, 15s. a

session.

West Ham Municipal College, Romford Road, E.15.—
Evening classes for the Preliminary Scientific examination.
Inclusive fee 14s. to 28s. Day and evening classes for B.Sc.
(London). Fees: day, £9 to £18; evening, 14s. to 18s.

Manchester.—Victoria University.—Courses for B.Sc.
degree in science. Classes in bacteriology are held in the
University in connection with the Department of Bacteriology and Preventive Medicine, York Place. Pharmacists are admitted to the elementary courses in bacteriology.

tenology.

College of Technology also provides specialised instruction in applied chemistry leading to the Manchester University degrees of B.Sc. Tech., M.Sc. Tech., and Ph.D., and also to certificates in the Faculty of Technology.

Tutorial College.—Revision course in botany, chemistry and physics; composition fee for the three subjects, £10 10s.

NEWSCHEMEN TANK AND TANK TO College. (Physicsity at

NEWGASTLE-UPON-TYNE.—Armstrong College (University of Durham).—Tuition fees for degree course in pure science

235 per annum Registration fee, subscriptions to students' societies and examinations fee, £7 13s. 6d. per annum. Norwich.—Technical College.—Day classes are held in chemistry, physics, and biology, and evening classes in botany, biology, chemistry and physics. Pharmaceutical chemistry, organic chemistry and Latin classes are available for students who have been successful in the Preliminary Scientific examination.

ary Scientific examination,

Oxford.—University.—For particulars apply to the Registrar. Technical School.—Evening classes in chemistry.

Plymouth and Devonder.—Technical College.—Day and evening courses of B.Sc. Lond. Sessional face: Day, £15 to £20; part-time day classes or evening classes, £3 3s.

Portsmouth.—Municipal College.—Instruction in Science and technological subjects. Faces, £2 2s. to £8 8s. per term for full-time day courses; 7s. 6d. to 25s. per session for evening courses.

evening courses.

READING.—University.—B.Sc. course, £35 per session. Pre-liminary Scientific examination of the Pharmaceutical Society, £28 per session. Evening classes in physics, chemistry and botany.

ROCHDALE. - Municipal Technical School. - Evening classes

ROCHDALE.—Municipal Technical School.—Evening classes in chemistry and botany.

St. Andrews.—University College.—Inclusive fee for courses for B.Sc. degree in pure science, £94 10s.

SALFORD.—Royal Technical College.—Three years' full-time day course, for which a diploma, endorsed by the Board of Education, is awarded. Evening courses in chemistry and physics, qualifying for "course" and "higher course" certificate. Recognised by the Institute of Chemistry.

SHEFFIELD.—University.—Degree courses in science. The composition fee for a three-year course is £105.

Composition fee for a three-year course is £105.

Southampton.—University College.—B.Sc. course composition-fee. £32 per session. Evening classes in science subjects,

£1 to £5 per course.

SWANSEA.—University College.—Day courses are held for degrees in science. Composition fees for a full time degree

degrees in science. Composition fees for a full time degree or diploma course in pure or applied science £20 per session. Wigan.—Wigan and District Mining and Technical College.—Full-time day courses in chemistry for honours degree (B.Sc.) of London University, A.I.C., national certificates in chemistry and gas engineering, first medical and pharmaceutical examinations. Part-time, day and evening courses. Also evening classes.

# Veterinary Surgery

To become a member of the veterinary profession in this country it is necessary to obtain the membership diploma of the Royal College of Veterinary Surgeons. Candidates who desire to enter upon the course of study for this purpose must first pass a recognised examination in general education and submit to the Royal College the certificate so gained for the approval of the Council (10 Red Lion Square, London, W.C.1). This examination must be passed one complete session before the date of the first professional examination. The profes-

sional course of training lasts over a period of four years (to be increased to five years from October 1932) and must be taken at one of the five veterinary schools affiliated to the Royal College. At the end of each school year an examination is held, the subjects being as follows:

First Professional Examination.—Chemistry and physics; biology; elementary zoology and botany.

Second Professional Examination. — Anatomy of the demesticated animals; histology and physiology; animal management, and the principles of shoeing.

Third Professional Examination .- Pathology, bacteriology, and morbid anatomy; materia medica, pharmacy, there peutics, and toxicology; veterinary hygiene and dietetics.

Fourth Professional Examination .- Principles and practice of veterinary medicine; meat inspection; principles and practice of veterinary surgery and obstetrics.

Graduates in science, medicine or agriculture, and holders of the diploma of M.R.C.S., or L.R.C.P., may holders of the diploma of M.R.C.S., or L.R.C.P., may be exempted from the first year's course and the examination at the end of that year. A similar concession may be granted to matriculated students in science, art or medicine who have passed a university examination (with honours or the equivalent) in chemistry and physics, botany and zoology. The examination fee payable to the Royal College of Veterinary Surgeons is £5 for each examination, or £3 3s. for re-examination in the same class. In addition to the post-graduate, several entrance scholarships are open at the affiliated colleges. The Royal College also grants a diploma in Veterinary State Medicine also grants a diploma in Veterinary State Medicine (D.V.S.M.). This is only open to members.

## Veterinary Colleges

(Affiliated to the R.C.V.S.)

London.—Royal Veterinary College (founded 1791; incorporated 1875), Great College Street, Camden Town, N.W.1.—Educational fee for four years' course of instruction, £105, may be paid in four instalments. There are also library and other fees amounting to £12. Fees for occasional students are from £3 3s. to £8 8s. per subject, and for those taking the B.Sc. degree in veterinary science of the University of London additional fees totalling £15 15s. Secretary, Mr. T. C. Wight.

EDINBURGH.—Royal (Dick) Veterinary College, Summerhall (founded 1823).—Class fees for the complete curriculum amount to £105. There is also a matriculation fee of 10s. 6d. payable by all students at the beginning of each session. Principal, O. Charnock Bradley, M.D., D.Sc., M.R.C.V.S.

Dublin.—Veterinary College of Ireland, Shelbourne Road, Ballsbridge.—The College is conducted by the Department of Agriculture. The tuition fees for the full course amount to £84. Principal, Professor J. F. Craig, M.A., M.R.C.V.S. Particulars may be obtained from the Registrar.

GLASGOW.—Glasgow Veterinary College (established 1862; incorporated 1909), Buccleuch Street, Garnethill. Full particulars are obtainable from the secretary. Principal, Professor A. W. Whitehouse, M.A., M.R.C.V.S.

LIVERPOOL.—The University Veterinary School gives a university training for the M.R.C.V.S. and also for a veterinary degree. For the fees and complete curriculum application should be made to the Director.

## Veterinary Degrees

Having obtained his diploma the graduate is eligible for numerous official appointments at home and abroad and commissions in the veterinary units of the Army. A member of the Royal College who has been engaged in the practice of his profession for two years or upwards may present himself for examination for the diploma of Fellowship (F.R.C.V.S.). Veterinary science degrees are granted by several universities, including Edinburgh, Liverpool and London, to candidates who matriculate and take the prescribed course of study.



# Optical Diplomas

It is generally admitted that as an auxiliary to the business of a chemist and druggist there is none more appropriate than the practice of sight-testing and spectacle fitting. In this country it is not essential to pass an examination before commencing business as an optician, but the possession of a diploma issued by one of the leading examining bodies is eminently desirable. The standard of these examinations is being gradually raised, and in one instance matriculation or its equivalent is a necessary preliminary.

## The Diploma Schemes

THE SPECTACLE MAKERS' COMPANY, 36 Furnival Street, Holborn, London, E.C.4, holds its examinations (a) Fellowship, (b) Honours, in London in May and November and occasionally in the provinces. The former is divided into three parts; candidates over the age of seventeen years may enter for Part I, but not for Parts II and III until they have attained eighteen years. In no case can the diploma be taken up before the age of twenty-one. No candidate is passed in any section of Parts II or III unless he has satisfied the examiners in all sections of Part I. The subjects of the examination are as follows:—Part I: (a) A practical examination in the measurement of focal powers of lenses and an experiment selected from optics and ophthalmic lenses of (c); (b) a viva voce examination on (c); (c) a written paper on light, optics and ophthalmic lenses; a practical examination in neutralisation, setting and marking for edging of lenses and prisms. Part II: (e) a practical examination in face measurement, frame measurement and frame manipulation; (g) a written paper on visual optics and refraction, ophthalmic instruments, frame fitting and measurement; (h) a practical examination involving subjective and objective testing of living subjects. Part III: (j) a practical examination on (l); (k) a viva voce examination on (l); (l) a written paper on anatomy and physiology of vision and recognition of abnormal ocular conditions.

The Honours examination, which is open to diploma holders who have passed the Fellowship examination at least twelve months previously, is a more advanced test for those who are interested in the fundamental principles of their work.

ciples of their work.

The fees are as follows:—Fellowship: Part I £4 4s., Part II £4 4s., Part III £3 3s.; Honours: £5 5s. The prospectus giving full particulars of the examinations may be obtained from the clerk to the Company at the above address.

The British Optical Association, Clifford's Inn Hall, London, E.C.3, conducts a Preliminary, a Dispensing, a Fellowship, and an Honours examination, the first-named being in general education and the others in optics. No candidate will be accepted for the Fellowship examination who has not previously passed the Preliminary or an examination of matriculation standard. The Fellowship examination is divided into five sections, as follows: (A) Estimation of refractive errors; (B) physiologic optics; (C) mechanical and physical optics; (D) anatomy and physiology; (E) recognition of pathological conditions. The Dispensing examination consists of (C) of the Fellowship. The Honours examination is in the following subjects: (A) Advanced physiology; (C) recognition of pathologic conditions of the eye; (D) ethics and etymology. The examination fees are: Preliminary, \$\frac{f}{2}\$ 12s. 6d.; Dispensing, \$\frac{f}{2}\$ 2s.; Fellowship, \$\frac{f}{1}\$ 10 10s.; Honours, \$\frac{f}{2}\$ 5s. The Preliminary and written papers of the Fellowship and Honours examinations are held twice yearly in London, Manchester and Edinburgh. Practical examinations in the Fellowship, Honours and Dispensing grades are held in London twice yearly in May and November; annually in Manchester, Liverpool and Edinburgh, and occasionally

in other centres. All candidates, prior to examination, must submit evidence of at least 500 hours' training in mechanical and technical optics, 100 hours' clinical training at a recognised institution, of attendance at an approved course in clinical experience specifically arranged with abnormal or pathological subjects at a recognised institution, and of twelve months' employment or business training with an approved optical firm or optician. This evidence to be in addition to the mechanical and technical training.

Candidates for the Preliminary examination must have attained the age of sixteen years. All examinations are open to persons of both sexes over eighteen years of age. Successful candidates over the age of twenty-one, or on attaining the age of twenty-one, will be required to take up membership of the Association. Certificates are not supplied until the applicant has reached the age of twenty-one, and thus entitled to become a member of the Association. The full prospectus may be obtained from the secretary.

The National Association of Opticians, 130 Princes Road, Liverpool, has instituted a diploma scheme under which examinations are held in January and July at such places as the Council may determine. The examination consists of two parts, the First and the Final, which may be taken separately. The former is open to candidates under the age of twenty-one, but no certificate is issued until they are fully qualified. The subjects are as follows:—

First: (a) A written examination in general and practical optics, and optical calculations. (b) Oral examination in general and practical optics, and optical calculations. Fee, £3 3s.

Final: (a) Written examination in visual optics, in anatomy, physiology and diseases of the eye. (b) Viva vcce examination in visual optics, in anatomy, physiology and diseases of the eye. (c) Practical sight-testing. (d) Practical face and frame measurements. (e) Practical analysis and marking of lenses and prisms. Fee, £3 3s.

Two scholarships are offered annually to optical

Two scholarships are offered annually to optical students under twenty-one years of age; particulars of these and the prospectus may be obtained from the Secretary, at the above address.

#### Optical Instruction

The following are among the principal schools where the necessary instruction in preparation for the examinations may be obtained:—

Northampton Polytechnic Institute, St. John Street, London, E.C.I.—Complete training is given for ophthalmic and dispensing opticians. The department is provided with extensively equipped laboratories for anatomy, physiology of vision, objective and subjective sight testing and clinical work, general optics and optical instruments, together with workshops for lens grinding, edging, instrument making and spectacle-frame work. Living cases are provided for examination by students throughout the session. The ground required for the F.S.M.C. and F.B.O.A. examinations is covered in both day (full-time or part-time) and evening courses. The fees range from 30s. per session for evening courses to £18 for the full-time day course. The courses are recognised by the British Optical Association for mechanical and technical training, clinical training and clinical experience. Scholarships tenable at the two years' full-time day course are offered by the Worshipful Company of Spectacle Makers, the Aitchison Memorial Committee, and the Governing Body of the Polytechnic. Evening classes commence on September 21 and day classes on September 30. Prospectus and full particulars on application.

REFRACTION HOSPITALS.—The lectures and demonstrations arranged in connection with the granting of the hospital certificate commence in September. The subjects include physiology, pathology, embryology, methods of examination, use of drugs and hospital routine. Post-graduate students in ophthalmic optics may attend the hospital without taking the examination. The three Hospitals have been recognised by the British Optical Association for clinical experience, and London





for clinical training in addition. Full particulars can be obtained from 58-60 Newington Causeway, London, S.E., or 51 St. Paul's Street, Leeds, or 26-28 Richmond

Street, Glasgow, C.I.

THE SCHOOL OF OPTICS, LTD., 2 Guilford Place, London, W.C.I, where Mr. Lionel Laurance and Mr. H. Oscar Wood prepare students for the recognised qualifying examinations, is well fitted up and thorough training is given. The complete full-time course (fee £31 10s.), which commences in May and November of each year, terminates with the next succeeding examination, and covers the entire syllabus. The part-time combined course (fee £14 14s.), which can be commenced at any time, consists of homework by correspondence, supplemented by classes held during the month preceding the examination, and, prior to it, on Wednesday and Thursday afternoon of every week. The School is recognised by the British Optical Association for mechanical, technical and clinical training.

BRITISH OPTICAL INSTITUTE, LTD., Fern Lodge, 20A Grove Road, Brixton, London, S.W.9 (Principal, Dr. Max Coque, B.Sc.).—Full courses cover the entire syllabus of all optical examinations. Afternoon classes are held all the year round on two days a week in order to enable students to carry out all branches of practical work. Evening classes are held during the three months and daily revision classes during the month preceding each London examination. Special attention is drawn to the clinic, where students who have reached a sufficient degree of proficiency have the opportunity of seeing and handling actual cases, often of great interest. The Institute is a recognised training centre in connection with the new regulations of the B.O.A. For particulars apply to the Principal.

MR. C. A. Scurr, F.S.M.C., F.B.O.A., chemist and druggist, 50 High Street, Barnet, prepares candidates for either of the foregoing examinations. The courses, being mainly correspondence, are particularly suitable for those desiring an optical qualification by spare-time study. The practical work is usually performed during a visit to London just prior to the examination. The fees vary from £5 5s. to £9 9s., according to the

examination.

Mr. Walter Simpson, F.S.M.C., F.B.O.A., chemist and druggist, 510 Fulham Road, London, S.W.6, conducts correspondence courses for the B.O.A. and S.M.C. examinations, the lectures being supplemented by practical instruction to suit the students' convenience. Mr. Simpson has special facilities for students to become acquainted with abnormal conditions and ccular disease. Further details are given in the prospectus.

TECHNICAL COLLEGE, Bradford.—Courses in applied optics have been specially arranged to meet the requirements of ophthalmic and dispensing opticians, and particularly those entering for the examination of the British Optical Association and the Worshipful Company of Spectacle Makers. The courses are fully recognised by the British Optical Association for mechanical and technical training, clinical training and clinical experience. Registration for next session begins on Septem-

ber 14 and evening classes on September 21.

MUNICIPAL COLLEGE OF TECHNOLOGY, Manchester, provides a full-time day course in applied optics extending over a period of two years. Candidates are required to pass an entrance examination (unless they have passed an approved equivalent examination), on which also a British Optical Association Scholarship of the value of 440 per annum is awarded. The College also conducts evening classes which cover the examination syllabuses of, and which are recognised by, the British Optical Association.

WEST HAM MUNICIPAL COLLEGE, Romford Road, Stratwest HAM MORITH COLLEGE, Rollind Road, Stratford, London, E.15, holds classes, conducted by Mr. W. Swaine, B.Sc., F.Inst.P., F.S.M.C., in pure and applied optics, on Thursday afternoons (2.0-4.30) and evenings (6-9.30). These are suitable for ophthalmic, dispensing and instrument opticians, and cover the syllabuses of the optical examinations. The College is recognised by the British Optical Association for

mechanical and technical training. Fees: For East Ham and West Ham residents, 14s.; other students, £1 8s. Enrolment September 14, 15, 17 and 18. Classes commence September 21. Apply for prospectus and other particulars to the Principal.

HERIOT-WATT COLLEGE, Edinburgh, has arranged a course in ophthalmic optics which extends over three years and meets the requirements of the Spectacle Makers' Company and the British Optical Association. The course has been recognised by the latter body for mechanical, technical and clinical training. A composite

mechanical, technical and clinical training. A composite fee of £2 2s. is charged for each year of the course. The College of Offics, 395 Argyle Street, Glasgow, holds all-day, part-time and postal courses, which cover the work in general and visual optics and practical sight-testing, suitable for either of the examinations. Classes are also held in Edinburgh and Dundee. The Principal is Mr. T. S. Baird Argyle Street Classes. Principal is Mr. T. S. Baird, Argyle Street, Glasgow.

# Books for Students

books which students are required to use. The following list contains some of the popular text-books for pharmaceutical students.

"Pharmaceutical Botany" (C. & D. Office), 5s.

"Botanists' Pocket Book," Hayward, revised by G. C.
Druce (Bell), 5s.

"Practical Botany for Beginners," Bower and Gwynne-

Yaughan (Macmillan), 4s.

"Text-book of Botany for Medical and Pharmaceutical Students," James Small (Churchill), 21s.

"Botany for Students of Medicine and Pharmacy," Fritch

and Salisbury (Bell), 10s. 6d.

## CHEMISTRY

"Elementary Inorganic Chemistry," James Walker (Bell), 5s. (suitable for beginners).
"Text-book of Inorganic Chemistry." Senter (Methuen).

Text-book of Inorganic Chemistry," Senter (Methuen), 7s. 6d. Modern Inorganic Chemistry," Mellor (Longmans),

12s. 6d. "Text-book of Inorganic Chemistry," Newth (Longmans),

8s.

"Theoretical Organic Chemistry," Cohen (Macmillan), 7s.

"Inorganic Chemistry," Lowry (Macmillan), 20s.

"Volumetric Analysis," Hampshire (Churchill), 7s. 6d.

"Elementary Analytical Chemistry," Arnall and Appleyard (Churchill), 6s.

PHARMACEUTICAL LATIN AND PRESCRIPTION-READING

"Latin Grammar of Pharmacy," Joseph Ince (Baillière),

7s. 6d.

"Medical and Pharmaceutical Latin for Students of Medicine and Pharmacy," R. R. Bennett (Churchill), 10s. 6d.

"Aids to Pharmaceutical Latin," G. E. Trease (Baillière), 3s. 6d.

MATERIA MEDICA

"Materia Medica," Southall, revised by E. W. Mann (Churchill), 12s. 6d.

"Text-book of Materia Medica," Greenish (Churchill), 25s.

#### PHARMACY

"British Pharmacopæia" (Constable), 10s. 6d.
British Pharmaceutical Codex" (Pharmaceutical (Pharmaceutical ' British "British Pharmaceured Society, 30s.
"Practical Pharmacy," Lucas (Churchill), 27s.
"Text-book of Pharmacy," Bentley (Baillière), 15s.
"Essentials of Pharmacy," Wootton (London College), 5s.
"Art of Dispensing" (C. & D. Office), 8s.
"Forensic Pharmacy" (Pharmaceutical Society), 3s. 6d.

"Dispensing for Pharmaceutical Students," Cooper and Dyer (Pitman), 7s. 6d.

PHYSICS

"Practical Physics," Allen and Moor (Macmillan), 10s. 6d.
Text Book of Physics," Duncan and Starling (Macmillan), 10s.
"Manual of Physics," Crowther (Oxford University

Press), 14s.
"Principles of Physics," Smith (Arnold), 9s.

# Fairchild Scholarship and Prizes

THE 1931 examination for the Fairchild scholarship and prizes was field on June 18 at the following centres:—Belfast, Cardiff, Dublin, following centres:—Belfast, Cardiff, Dublin, Edinburgh, London, Manchester. The candidates who complied with all the conditions and entered for this year's examination numbered fifty-eight. The questions were set and assessed by Mr. Harry Brindle, B.Sc.(Lond.), F.I.C., Ph.C. (chemistry and physics), Mr. Peter Boa, Ph.C. (practical pharmacy and prescription-reading), Mr. Thomas Marns, M.P.S. (business knowledge and sale of poisons), and Professor J. Small, D.Sc., Ph.C., F.L.S., F.R.S.E. (botany). The following are the results:—



MR. R. GURD

Mr. Maurice Robert Gurd, Portslade, Sussex, wins the scholarship, value £60, with 374 marks out of a possible 500. Mr. Gurd was apprenticed to Mr. John Plowright, Ph.C., 82 Beaconsfield R o a d, Road, Brighton, where he is still employed.

Mr. Sidney Oldham, Ashby-de-la-Zouch, wins the prize for England, £5. Mr. Oldham was apprenticed to Taylors (Cash Chemists), Midland, Ltd., Leeds, at Leicester and Ashby-dela-Zouch.

Mr. James Anderson Brown, Belfast, wins the prize for Ireland, £5.

Mr. Brown was apprenticed to Grattan & Co., Ltd., 7 and 9 Corn Market, Belfast.

Mr. David Adam Smith, Aberdeen, wins the prize for Scotland, £5. Mr. Smith was apprenticed to Mr. Peter G. Fyfe, 115 High Street, Laurencekirk.

Mr. Mostyn Williams, Cardiff, wins the prize for Wales, £5. Mr. Williams was apprenticed to Mr. A. T. Mogg, 17 Meteor Street, Cardiff.

The prize for England weekly between which is a contract to the formal of the contract to the contra

The prize for England would have been awarded to Mr. Hedley W. Bartlett, Ealing, W.5, but he was disqualified owing to his having accepted another scholarship. The following is the text of the papers:-

#### CHEMISTRY AND PHYSICS

## (Time allowed-two hours.)

(1) Describe how you would carry out two of the follow-(1) Describe now you would carry out two of the following experiments and give a brief account of the physical principles underlying the experiments which you describe.

(a) The determination of the focal length of a concayor lens.

(b) The determination of the specific gravity of an

insoluble powder such as barium sulphate. (c) The verifica-tion of Boyle's and Charles' laws concerning the physical effects of changes of temperature and pressure upon gases. (2) Answer either (a) or (b).

(a) Describe the construction and special advantages of a Fortin's barometer and an aneroid barometer. If the height of the mercury in a barometer is 772 mm. calculate

height of the mercury in a barometer is 772 mm, calculate the pressure in dynes per sq. cm. and in millibars.

(b) Describe the construction of and method of using a secondary cell and one form of a primary cell. Briefly explain some methods which are used for the prevention of polarisation in primary cells. A current of 5 volts E.M.F. is passed through three wires of 2 ohms, 3 ohms and 5 ohms resistance respectively. Calculate the current which will pass if the wires are placed—(I) in series, i.e., end to end. (II) in parallel.

(3) Explain what happens in the following cases and describe the conditions necessary to bring about the reactions which you describe.

the conditions necessary to bring about the reactions which you describe.

(a) Potassium ferrocyanide is heated with sulphuric acid.

(b) Sulphuretted hydrogen is passed into a solution of sodium arsenate acidified with hydrochloric acid. (c) Strong sulphuric acid is poured carefully to form a layer into

ferrous sulphate solution which contains a little potassium nitrate. (d) Nitric acid is poured upon (a) iron filings, (b) granulated zinc. (e) Ferrous sulphate crystals are heated.

(4) Commencing with metallic bismuth state with practical details how you would prepare samples of bismuth oxide and bismuth oxycarbonate. Compare and contrast the properties of bismuth oxide with those of the oxide of another element which occurs in the same group in the periodic classification.

(5) Describe a method for the determination of the percentage of nitrogen in an organic compound. Of what practical use is the knowledge of the proportion present? BOTANY

## (Time allowed-one hour.)

(1) Draw a large-scale diagram of a typical ovule in longitudinal section. Label all the parts and add short notes on the function of each part.

(2) Tabulate the characters by which you would distinguish (a) between a root and a rhizome, (b) between a leaf

and a phylloclade.

(3) Discuss carefully, with illustrative drawings, the differences between a good cork and a bad cork, including some account of the structural details considered as part of the living plant.

## PRACTICAL PHARMACY AND PRESCRIPTION READING

#### (Time allowed—one hour and a half)

(1) Cantharidin ointment, capsicum ointment, compound mercury ointment, stavesacre ointment: state the constituents of these and the proportion of active ingredient; and describe the official process for preparation of these

(2) Describe in detail the official process for preparing acid infusion of cinchona and acid infusion of roses.

is the object of employing acid in both infusions?
(3) Write the full official Latin name for the following: Infusion of bearberry, camphorated oil, compound liniment of camphor, seidlitz powder, phenyl salicylate, aromatic

(4) Describe the method you consider best to make the

(4) Describe the method you consider best to make the following substances into a non-bulky pill: (a) 4 grains of quinine sulphate; (b) 4 grains of pepsin, (e) 2 grains of phenol, (d) 2 mimims of oil of juniper.
(5) Translate the following prescriptions into English and render the directions in appropriate language:—

(a) Bismuth salicyl, gr. x. Pulv. cretæ præparatæ gr. viij. Pulv. tragacanth. co. q.s. Infus. caryoph, ad 5ss. Misce et mitte 5vj. Sig: Cochleare magnum bis die post cibos sumendum. State the proper quantity of pulv. tragacanth co. to be used.

(b) Ext. bellad. virid. gr. \(\frac{1}{4}\). Morphin, hydroch. gr. \(\frac{1}{6}\). Ol. theobrom. gr. xv. Ft. suppos. et mitte talia vj. Sig: Unum hora somni utendum si opus sit. Indicate suitable procedure in preparing the suppositories.

## Business Knowledge and Sale of Poisons (Time allowed—one hour)

(1) (a) Compare trade and cash discounts, and state how you would record them in your books.

(b) What is the difference between a deposit and current account with a banker? What rate of interest is usually allowed on a deposit account?

(2) Record the following in a four-column cash book.

March 1. Balance at bank £36 10s.
March 2. Cash sales £11 10s.
March 2. Cash sales £11 10s.
Customer £5. Discount allowed 2s. 6d. Drew cheque petty

March 3. Cash sales £10 11s. Paid by cheque wholesale

March 4. Cash sales £15 9s. Drew cheque for salaries £10 10s. Assume all cash and cheques received were banked daily. Bring down balance for March 5.

daily. Bring down balance for March 5.

(3) How would you deal with the following prescription? Give your reasons. Tinct. scillæ, m15; tinct. hyoscyami, m15; diamorphin. hydrochlor., gr. 1/20; vin. ipecac., m10; spirit camphoræ, m3; inf. senegæ, ad 1 oz. Mitte six

(4) State the conditions under which you would dispense simple prescriptions ordering the following:

1. Tinct, cannabis indicæ
2. Tinct, chloroform, et morphin, B.P. '85
3. Tinct, camph, co

3. Tinet. camph. co.

# Curiosity, and Where It Leads

NE of the most deeply ingrained traits in man is curiosity. It takes many forms, creditable and otherwise, and of the creditable variety that finding expression in the desire to see what lies "over the other side of the hill" reaches its greatest strength in those members of the human race cradled in the sea-surrounded, wind-swept British Isles. This desire affects men of our race in varying degree, and in its severest form becomes a terrible urge that never knows satisfaction. The demand of a questing intelligence to learn what it is like somewhere else on the earth's surface other than the spot at which it is for the moment stationary is a foundation upon which the Empire has been builded in the past and the bed-rock on which it rests in the present.

Why do our young men go abroad? If we ask they will tell us anything but the truth. They will say that England does not offer them "a chance"; they will pretend that the higher pay and the higher standard of living which many overseas appointments offer are the attractions; or they will tell us that they want the sunshine of the tropics or the great open spaces so beloved of popular novelists of the day. Could we but look into the secret places of their hearts we should find their determination to seek new avenues of experience springs not from a desire for money, sun

or open spaces, but just curiosity.

Even members of our calling are afflicted with this driving urge; most work out their lives behind the counter and the dispensing screen, finding in the varied contacts which they make through business an outlet for it; others stifle it in the winter months, then give it rein in the spring and during the summer call to the sea—these are your locums, a feared and hated tribe. Those of yet another class—very small and select—are not content with these half-measures, but give the best years of their lives to the call, and follow it to the ends of the earth.

#### An Essential Qualification

I speak of the things which come the way of these few; if any who read these words, thumped out on an ancient travel-stained portable typewriter in the sweltering heat of an Indian night, perspiration running down face and arms, dripping from eyebrows, nose and chin to the accompaniment of temple bells and the doleful singing of a copper-coloured Romeo in the distance—if any of you are fired with the wish to experience these things for yourselves, the way is not too hard. The world is ever ready to welcome those who take the plunge; there are many firms eagerly seeking your services, but the world and the firms which serve it demand one supreme qualification—that you are a man, with self-control and ability to look after yourself.

Seven years following the calling of a wandering chemist—what pictures they conjure up, what a jumble of strange sights and sounds, a medley of East and West and South. Sixty thousand miles in ships, trains, motor-cars, tongas, gharries, bullock-carts, rickies and on foot, in sun and rain, drought and flood, peace and riot, through bush and jungle, across scorching plains and in the green-clad hills, into fœtid bazaars and dig-

nified marts of trade.

I see again in memory the blinding glare of the white roads of Malta, the island of goats, where these odorous animals are driven round the streets of Valetta and milked at the doors of those requiring milk; the wonders of the Rock of Gibraltar, its monkeys, its steep streets and mixture of Spanish, Moorish and Indian merchants' names on the shop fronts; the citadel at Naples bathed in the morning sun; the miracle of Pompeii with its chariot-worn streets and fountains playing as they did on that tragic day when the earth belched fire and buried it from the sight of man; the Rue Cannbierre at Marseilles on a spring morning, crowded with sightseers; Princess Street, Bombay, in the possession of a riotous mob; the calm peace of Londonderry on an

August afternoon; the streets of north Calcutta filled with a fighting crowd of Hindus and Mahomedans; a desecrated temple and a burnt-out mosque, with a mutilated body at its very doors.

Lazing on the decks of an outward bound P. & O., the days a symphony of blue and gold patterned with the silver flashes of flying fish, nights under the Southern Cross, listenening to lies of all sizes in the smoke-room and to stories of shikar by blue-eyed men with burnt-up faces; and those evenings in the cabin of the captain of a ship on the Gulf run, with their tall stories of yesterday and to-day; the amazing picture of the skipper of an Elder Dempster receiving on his ship the Admiral of the Fleet of a Negro Republic, who was dressed in red and gold, wearing an old top hat, a sabre and no boots or shoes, and accompanied by a bodyguard of two nearly naked ratings from his flagship.

## Glimpses of Wild Life

Still the memories crowd in—glimpses of wild life—hippopotami roaring and splashing in the placid waters of the White Volta, on the road to Timbuctoo; a score of marabout storks rushing, startled, into the brazen blue of an equatorial African noon; the polished skeleton of a dog which was left chained in the path of a drive of black ants; an Indian dawn, with black buck at a fresh-water pan, hyena and jackal prowling round and kites wheeling and plaintively screeching overhead; two leopards seated at a roadside in Assam watching, unconcernedly, the passing of the silent Willys-Knight; a glimpse of a bear in the seven-foot high ferns on a hillside; the great Temple of Jaggernath at Puri; the glory of the Taj Mahal on a full-moon night in May; the grotesque carvings on the walls of an ancient temple in South India chiselled by forgotten masters in a distant past; the place of the Kings of Kandy with its Temple of the Holy Tooth and sacred lake alive with fish (so tame that they feed from one's hand). Even smells have memories—as anyone may testify who has been in the fish market at Sierra Leone, never can the odour of decaying vegetation and of ants on drive in the dense bush of tropical Africa be forgotten, while the smell of Calcutta's Burra Bazaar will be with me till I die.

And at the last comes the most unforgetable memory of all as, homeward bound, the coast of Cornwall looms through the Channel mists as the liner points her bow at Plymouth and the land of clotted cream and saffron cakes. Who, having once made the journey, can ever forget the roaring flight of the Ocean special, Londonwards, through our green and smiling England, lovely with a loveliness that only the sun-bitten exile can appreciate? Not I—nor will you, if you follow the trail of the Knight of the Road.—" DAWAI-WALAH"

(22/1).

The Height of Sun-Blinds.—Summonses have lately been issued in Doncaster, under an old Act of Parliament, against shopkeepers whose sun-blinds are less than 8 ft. from the ground. In one case a policeman's hat was knocked off by a sun-blind, and a fine of 5s. followed.

The aloof specialist.—"Only the other day I consulted Sir Boracic Bandage, the eminent Harley Street mental specialist. I had been pondering over the political situation, and I wanted to discover whether the politicians were dotty or I was. But I found I could not get really 'matey' with Sir Boracic. He asked me the usual questions about whether I had noticed any black dogs following me into the office, or felt I was being persecuted by the income-tax collector, in a most perfunctory and uninterested way. 'What is it?' I asked at last in tense anxiety. 'Five guineas,' he replied coldly. 'I'll write to your own doctor.' One cannot get any thrill out of that sort of interview.'—" 'Peter Simple" in "The Morning Post."

# Trade Report

Where possible scales of prices of chemicals are given for bulk down to small quantities. Prices recorded for crude drugs, essential and fixed oils and coal tar products are for fair sized wholesale quantities. Qualities of chemicals, drugs, essential and fixed oils, etc., vary, and selected brands or grades would be at higher values

## 28 Essex Street, W.C.2, August 13

Although the markets as a whole are subdued there is a somewhat better feeling and a little more business in some directions. In pharmaceutical chemicals the usual flow of small orders continues and most products are maintained in value. Citric and tartaric acids and cream of tartar remain depressed and weak. Thymol is again offered at slightly lower rates. Bromides at the moment are offering from the Continent at cheap figures, which may effect values on this market, if they continue to operate. In crude drugs there is little of a satisfactory character to record. The markets for the whole range of products appear to be suffering from the cotton-rubber-wheat complex without good reason, for in many instances shipment plex without good reason, for in many instances shipment quotations are well maintained and in some cases are firmer. Menthol is a good market. Ipecacuanha is well supported and business is sustained. Senega has reached a very low figure for shipment. In essential oils the chief point of interest is the general advance and some shortage on spot and for shipment in Spanish oils. Sicilian oils are about maintained on the week and business has been very medicate. Imaging demontholised perspermint is being about maintained on the week and business has been very moderate. Japanese dementholised peppermint is being inquired for, with plenty of bids under sellers' shipment figures. Spike, bois de rose and cinnamon leaf oil are dearer. As a whole there seems to have been a little more life in this market. In the fixed oils group complete depression continues and further declines in values are recorded. Palm oils are now at very low levels, with the market flat. Conditions in the industrial chemicals market are steady but generally quiet. In coal-tar products, interest is centered in carbolic acid crystals and pitch.

| Firmer                                                          | Easier                                                                                                            |                                                                                                                         |  |
|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|--|
| Bois de Rose oil<br>(Cayenne)<br>Cinnamon leaf oil<br>Spike oil | Aconite root Ammontum bromide Citric acid (B.P.) Coconut oil Cotton oil Cream of tartar Palm oil Paraformaldehyde | Paraldehyde Petitgrain oil Potassium bromide (B.P.) Senega (shipment) Sodium bromide (B.P.) Tartaric acid (B.P.) Thymol |  |

## Pharmaceutical Chemicals, etc.

A FAIR amount of small-sized business continues in this market and the majority of products are quite steady. Citric and tartaric acids are again easier, and cream of tartar is also cheaper, with the three markets unsteady. Bromides are being cut. Thymol is again slightly cheaper.

ACETANILID remains quiet with values about unchanged: B.P. crystals and powder, 1s. 43d. to 1s. 6d. per lb., as to

ADIPIC ACID meets with occasional inquiry with prices maintained: pure edible quality, in minimum one-cwt. lots, 1s. 3d. per lb., carriage paid.

AMIDOL is offering at steady rates and a moderate business is being done: one cwt., 7s.; 56 lb., 7s. 3d.; 28 lb., 7s. 6d.; 14 lb., 7s. 11d. per lb., in 7-lb. tins.

Amidopyrin has remained dull, but is keeping steady: crystals, five cwt., 11s. 11d.; two cwt., 12s.  $1\frac{1}{2}$ d.; less than two cwt., 12s. 4d. per lb., with powder  $1\frac{1}{2}$ d. per lb. extra.

Ammonium benzoate is offering in the region of 3s. per lb. as to quantity, spot.

Anmonium ichthosulphonate is steady, with some small business moving: one cwt., 1s.  $1\frac{1}{2}d_*$ , in 14-lb. tins; 1s.  $2\frac{1}{2}d_*$  in 1-lb. tins; 1s. 4d. in 8-oz. tins; and 1s.  $7\frac{1}{2}d_*$  per lb. in

ASPIRIN continues in very fair demand with values well maintained: home trade, ten cwt., 2s. 7d.; five cwt., 2s. 8d.; one cwt., 2s. 8½d.; 28 lb., 2s. 9d.; 14 lb., 2s. 10d.; lb., 3s.; 1 lb., 3s. 4d. per lb.; export to Colonies and British Possessions ten cwt., 2s. 7d.; five cwt., 2s. 8d.;

one cwt., 2s. 8½d. per lb., f.o.b.; less than one cwt., 2s. 9d. per lb., ex works.

BARBITONE remains slack and quoted values are inclined to be easy: spot, one cwt., 7s. 3d.; smaller parcels, up to 7s. 9d. per lb.

Benzoic acid (B.P.) is in fair demand and prices are holding up: quantities, cx works, 1s. 93dd.; spot parcels, 1s. 10d. to 1s. 11d. per lb., ex store.

BENZONAPHTHOL has been very quiet: spot quoted from 2s. 8d. to 2s. 9d. per lb., as to quantity.

BISMUTH SALTS.—There is no change in Convention rates: citrate, 8s. 7d.; subchloride, 10s. 5d.; carbonate, 7s. 9d.; subnitrate, 6s. 9d. per lb. in minimum cwt. lots.

Bromdes.—At the moment these markets are disturbed by some cheap offers from Germany, which, if they persist, by some cheap offers from Germany, which, if they persist, may cause a material reduction in values on this market. On the other hand, a withdrawal of this new competition may lead to a position whereby higher values may be quoted. Ammonium, 1s. 5d. to 1s.  $5\frac{1}{2}$ d.; potassium, B.P., granular, 1s. 3d., crystals, 1s.  $3\frac{1}{4}$ d.; sodium, B.P., 1s. 4d. to 1s.  $4\frac{1}{2}$ d.; per lb. for fair bulk quantities.

Bromisovalerylurea.—A Convention has been formed, and the following prices have been fixed: -300 kilos and over, 11s. 3d. per lb.; 100 to 299 kg., 11s.  $7\frac{1}{2}$ d.; 25 to 99 kg., 12s.; less than 25 kilos, 13s. per lb., carriage paid.

BUTYL CHLORAL HYDRATE has been quiet of late, but values are maintained: spot, 14 lb., 8s.; 7 lb., 8s. 3d.; small parcels, 8s. 6d. per lb., in 1-lb. bottles.

CALCIUM LACTATE is inclined to be rather easy as quoted and bu'k quantities might be at slightly less: spot, 1s. 1½d. to 1s. 3d. per lb. as to quantity.

Chloral hydrate is very steady, with home makers leading the market: duty-paid crystals, 2s. 11½d. to 3s. 1½d. per lb. as to quantity and packing; foreign, on spot, 3s. 3d.

CITRATES have been generally quiet, with prices quoted unchanged: potassium citrate, B.P., Is. 7d.; sodium citrate, B.P.C., 1923, Is. 8d.; ferri ammon. cit., B.P. (brown), Is. 9d. per Ib., in 28-lb. lots; 7-lb. lots, 5d. per Ib. dearer.

CITRIC ACID (B.P. CRYSTALS).—Business has shown no marked improvement during the week: foreign material is freely offered in the region of 10½d, per lb., less 5 per cent., carriage paid. The market continues unsteady. British carriage paid. The market continues unsteady. By makers quote  $10\frac{1}{2}$ d. per lb., less 5 per cent. discount.

COGNIE.—The agreed prices are being steadily maintained: hydrochloride, 25 oz., 20s. 11d.; 16 oz., 21s. 7d., and less, 22s. 5d. per oz.; pure, 22s. 11d. up to 24s. 4d. per oz.; 1-oz. tins. 2½d. extra.

COUMARIN is steady at the recent advance: five cwt., 10s. 6d.; one cwt., 11s.; and smaller quantities, 11s. 6d. per lb.

CREAM OF TARTAR is again slightly easier, with foreign material quoted at about 76s. 6d. to 77s. per cwt., less 2½ per cent., carriage paid, and slightly less for large quantities; business has again been poor. British makers quote 78s. per cwt., loss 2½ per cent. discount.

CREOSOTE CARBONATE is dull: spot is offering at about 5s. 4d. to 5s. 6d. per lb., as to quantity.

EPHEDRINE HYDROCHLORIDE continues in fair demand, with competition keen: spot, from 8s. to 8s. 6d. per oz.; pure, 10s. 3d. to 11s. per oz.

GUAIACOL CARBONATE.—The new scale of prices is as follows: five cwt., 5s.  $3\frac{3}{4}d$ .; two cwt., 5s.  $4\frac{3}{4}d$ .; one cwt., 5s.  $6\frac{4}{4}d$ .; less than one cwt., 5s.  $7\frac{1}{2}d$ . per lb.

HEXAMINE continues to be called for in good quantities and prices are very keen where important business is concerned: free-running crystals, spot, from 1s. 93d. to 1s. 10d. per lb., and less for large contracts.

HYDROQUINONE is meeting with about an average scasonal demand and the market is steady: ten cwt., 3s.  $5\frac{3}{4}$ d.; five cwt., 3s.  $4\frac{1}{2}$ d.; two cwt., 3s.  $5\frac{4}{4}$ d.; one cwt., 3s.  $5\frac{3}{4}$ d.; 56 lb., 3s.  $6\frac{3}{4}$ d.; 28 lb., 3s.  $8\frac{3}{4}$ d.; 14 lb., 3s.  $10\frac{1}{2}$ d.; 7 lb., 4s.  $0\frac{1}{2}$ d.; 1 lb., 4s. 7d. per lb., carriage paid.

METHYL SALICYLATE (B.P.) is a steady market and a very fair business continues to be transacted: one ton and over, 1s. 3d.; five cwt. 1s. 3dd.; one cwt., 1s. 3dd.; less than one cwt., 1s. 4d. per lb.

PARAFORMALDEHYDE is cheaper for bulk quantities, with business limited: 100 per cent. powder. quantities in kegs, ls. 3d.; smaller parcels, up to 1s. 5d. per lb.

PARALDEHYDE is a point cheaper on a rather dull market: quantities in demijohns, 9½d.; drums, 11d.; winchesters, 11d. per lb.; higher prices for small parcels.

PHENACETIN is holding steady at the old rates; secondhand parcels offering are not affecting the market: crystals. ten cwt., 3s. 8d.; five cwt., 3s. 9d.; two cwt., 3s. 9½d.; and less, 3s. 10½d. per lb., with powder 1½d. per lb. extra.

PHENAZONE is rather quiet, but the market is steady at the recently reduced values: crystals, ten cwt., 6s. 4d.; five cwt., 6s. 5½d.; two cwt., 6s. 7d.; and less, 6s. 8½d. per lb., with powder 1½d. per lb. extra.

Potassium sulphoguaiacolate is steady as now quoted for cwt. lots at 3s. 21d. per lb.

RESORGIN meets with occasional business with the market steady: spot, crystals, one cwt., 2s. 9½d.; 56 lb. 2s. 10d.; 28 lb., 2s. 10½d.; small parcels, 2s. 11d. per lb., with powder 1d. per lb. extra.

Salicylic acid (B.P.) is firm at home makers' one ton, ls. 5d.; ten cwt., ls. 5d.; five cwt., ls. 6d.; one cwt., ls. 6d.; small parcels, up to 2s. per lb.

SLIOL meets with some small business with the market steady: crystals, two cwt., 3s. 7½d.; one cwt., 3s. 9d.; 56 lb., 3s. 9½d.; less, 3s. 10½d. per lb.; powder, 1½d. extra.

SODIUM BENZOATE (B.P.) has been enquired for in average quantity; market is quoted keenly for important business; one ton, 1s. 6d. up to 1s. 74d. per lb., for small parcels.

SODIUM SALICYLATE (B.P.).—Controlled prices are maintained and a fair business is being done with homo makers in a leading position: homo trade, powder, two tons, 1s. 10d.; one ton, 1s. 10½d.; ten cwt., 1s. 11½d.; one cwt., 2s.; 28 lb., 2s. 1d.; 14 lb., 2s. 3d.; 7 lb., 2s. 4d.; 1 lb., 2s. 5d. per lb., with crystals 1d. per lb. extra lb. extra.

TARTARIC ACID (B.P. crystals).—This market is still weak and unsteady with foreign material quoted down to about 104d, per lb., less 5 per cent., carriage paid, and a fraction less for large bulk orders. British makers quote 104d., less 5 per cent. discount.

THYMOL is again easier while business remains very quiet: synthotic, fine white, one cwt., 5s. 9d.; 56 lb., 5s. 10½d.; 28 lb., 6s.; 14 lb., 6s. 3d. per ib.; ex ajowan seed, one cwt., 6s. 6d.; 56 lb., 6s. 7½d.; 28 lb., 6s. 9d.; 14 lb., 7s. por lb. THYMOL is again easier while business remains 14 lb., 7s., per lb.

#### Crude Drugs, etc.

ACONITE ROOT is easier, with Japanese on spot at 57s. 6d. to 60s. per ewt. Market steady.

AGAR-AGAR is steady, with occasional business passing: Kobe No. 1, 4s. 1½d. spot, 4s. 2d. c.i.f.; No. 2, 3s. 11d. spot, 3s. 11½d. c.i.f.; Yokohama, spot 3s. 11d., 3s. 10d. c.i.f.

ANTIMONY is dull and barely maintained: Chinese crude, spot, £21; shipment, £14, c.i.f.; Chinese white oxide, spot, £30; shipment, £21 10s., e.i.f.

BALSAMS.—This market is firm, with good quality Tolu at 2s. 4d. to 2s. 5d., and drossy about 2s. 2d. per lb., spot.

CAMPHOR.—Business has been a little better, with the market steady: Japanese, refined slabs, 2s. 1d.; flowers, 2s. 2d.; tablets, 2s. 7d.; shipment, slabs, 1s. 11d.; flowers, 1s. 11½d.; tablets, 2s. 5d., c.i.f.

CANTHARIDES.—For the small quantities available, about 2s. 8d. per lb. is being asked.

CARDAMOMS.—Market has been dull: bold Ceylon-Mysore, 5s, 3d. to 5s. 6d.; mediums, 3s. 9d. to 4s.; small mediums, 2s. 6d. to 3s. 3d.; smalls, 2s. 3d. to 2s. 6d.; greens, 1s. 10d., 5pot; shipment, 1s. 9d., c.i.f.; Bombay seeds, 3s. per lb.,

CASCARA SAGRADA is very steady, with the shipment offer of 1931 peel fully 41s. to 42s., c.i.f.; old peel on spot,

CHAMOMILES.—The latest arrivals of samples are of better quality than those received a week or so ago. The quotation for shipment of Belgian flowers, first pickings, is 120s. per cwt., e.i.f.

CLOVES .- Continuing rather dull, the market is inclined to be easier: Zanzibar, spot, 9½d.; shipment, August-October, 6½d.; Madagascar, spot, 8¼d. sellers. The landings of Zanzibar in London during the week ended August 8 were nil, and the deliveries 29, leaving a stock of 355, against 817 in 1930. From January 1 to date, landings of Zanzibar have been 1,070, against 6,130 in 1930, and the deliveries 1,734, against 5,320 in 1930. Landings of Madagascar for the week ended August 8 were 45, and the deliveries 22, leaving a stock of 1,298, against 2,579 in 1930. Landings of Madagascar this year to date have been 2,183, against 4,824 in 1930, and the deliveries 1,791, against 2,258 in 1930.

COCOA BUTTER is steadier, with the market dull: English, 10d.; Van Houten's A, 104d. per lb., in minimum one-ton lots.

COCONUT (DESICCATED).—After a further week of dull markets values show a slight loss: on spot, fine and medium, 18s., 6d.; shipment, halves, August-September, 16s. 3d.,

COD-LIVER OIL .- A fair amount of autumn shipment business continues to be done, with the market very steady: finest non-freezing Lofoten medicinal oil, 113s. to 114s. per barrel, c.i.f.; spot, minimum five-barrel lots, 116s. Some brands may be slightly cheaper.

Damiana leaves are offering on spot at 81d. per lb.

DIGITALIS LEAVES.—The shipment figure for new Hungarian leaves is 40s., c.i.f.

ERGOT.—Spanish old crop is quoted at about 1s. 6d., c.i.f.; Russian is offering on spot at about 10½d. per lb. It is reported that the Spanish new crop is likely to be short and higher prices are anticipated.

GELATIN has again been very quiet, but the market is keeping steady: gold leaf, 2s. ld.; silver leaf, 1s. 8d.; bronze leaf, 1s. 5d. per lb., in cwt. cases.

GINGER is a trifle easier on a slow market: West African, spot, 25s. 6d.

GUM ACACIA.—The market has remained flat: Kordofan, cleaned sorts, spot, 38s. 6d.; c.i.f., 35s.; natural, spot, 36s. 6d.; c.i.f., 33s.; bleached, spot, 100s. to 104s. per cwt.

HENBANE.—Foreign leaves are offering at about 40s. per

HYDRASTIS is firmer, with spot from 6s. 3d.; shipment, 5s. 6d., e.i.f.

IPECACUANHA.-Fair sales are reported, with good sound Matto Grosso root at 6s. 3d. to 6s. 6d. per lb., spot; Minas, 5s. 9d. to 6s. per lb.

LIQUORICE ROOT is steady but quiet: single-peeled root, 28s. 6d.; double-peeled, 47s. 6d. per cwt., spot.

LYCOPODIUM is steady, with the spot value for treble sifted at 3s. 3d. per kilo.

as quoted, the market is quite steady: spot, K/S brands, 13s. 7½d. to 13s. 9d.; shipment, October-December, 13s. 3d., c.i.f.

MERCURY is unchanged at the Spanish-Italian quotation of £16 15s. per bottle, f.o.b.; spot, about £17 per bottle, for fair quantities.

PEPPER.—Spot quotations are unchanged, while the forward positions are steadier at the slightly easier rates now quoted: Lampong, spot, 5½d.; July-August, 5½d.; August-October, 5½d., c.i.f.; Tellicherry, spot, 6d.; Alleppy, spot, 6d.; white Muntok, spot, 8½d.; July-August, 7½d.; August-October, 7½d., c.i.f.

PIMENTO has been neglected and the market is inclined to be unsteady: spot, 3d.; shipment, August-October, 25s., c.i.f., sellers.

Quassia Chips are being quoted at about 20s. per cwt.

QUILLAIA BARK is steady with crushed quoted at 35s. per cwt., spot.

RUBBER.—During the week the market again touched a new low value record, and has since recovered a little: business throughout has been unimportant, Total U.K. stocks have increased to 137,047 tons against 108,704 tons a year ago. No. 1 standard nibbed smoked sheet, sellers, spot, 2½d.; August and September, 2½d.; October-December, 2½d.; January-March, 2¾d.

SAFFRON is unchanged with business quiet: prime B.P., 44s.; extra B.P., 40s.; super B.P., 38s. per lb., spot.

SARSAPARILLA remains dull: genuine grey Jamaica, from 1s. to 1s. 1d. per lb., spot.

SEEDS.—ANISE.—Spanish, 47s. 6d.; Bulgarian, 32s. 6d.; Russian, 30s. per cwt., spot. Canary, lower. Mazagan spot 16s., and shipment 12s. c.i.f.; Tangier, 15s. 6d.; Kenitra, 15s. spot. Linseed.—Mazagan, 16s. 6d.; Morocco selling at 16s. spot. Coriander firmer, although no demand; 11s. to 11s. 6d. for sound old crop, spot. Cumin.—Malta, 50s. spot. shipment 40s. c.i.f. Morocco quiet, 35s. spot, forward 27s. c.i.f. Fenugreek firmer, 14s. spot;

Tunisian, 17s.; Indian, 13s. c.i.f.; little business, Caraway.— Dutch, more demand at 25s. spot. Mustard.—English, 22s. 6d. to 32s. per cwt. according to quality.

SENEGA is about level on spot at 2s. per lb., but shipment is again easier at about 1s.  $7\frac{1}{2}$ d. c.i.f.

SENNA.—There has been a moderate business in manufacturing grades: market is unchanged; Alexandrian, finest selected hand-picked pods, about 5s. 6d.; seconds, 5s. 6d.; mediums, 1s. 9d.; ordinary manufacturing, 4½d. to 5d. per lb., as to quality. Tinnevelly, new crop, ordinary f.a.q. pods, 4d. to 4½d.; hand-picked, 5½d. to 6d. per lb.

SHELLAC is about level after a week of poor business: TN standard orange, spot, 70s.; fine orange, 80s. to 160s.; pure button, 85s.; for delivery, TN sellers, October, 62s.; December, 64s.; for arrival, TN sellers, August-September, 59s.; September-October, 60s., c.i.f.

SQUILL.—New crop good white root which has just arrived is quoted at 18s, 6d.

STRAMONIUM LEAVES.—New crop good green Hungarian is quoted at 47s. 6d.

Tuba root.—Good high testing root is offering at about 1s. 2d. per lb.

Wax (Various).—Business in these products has again been quiet; the better grades of carnauba wax are easier: Japanese, on spot, 47s.; Carnauba, fatty grey and chalky grey, 67s. 6d.; medium yellow, 130s.; fine yellow, 160s. per cwt., spot. Candelilla is steady at 65s. per cwt.; Spermaceti, 9½d. per lb., spot; Paraffin, 17s. 6d. to 27s. 6d. per cwt., as to melting point; Ceresine. 35s. to 80s. per cwt., as to colour and melting point; Bees, bleached, discs, £7; slabs, £6 17s. 6d.; yellow refined, £6 2s. 6d.; yellow crude, £5 5s. per cwt., spot.

### **Essential Oils**

RATHER more business, mostly in limited quantities, is reported this week. The general level of prices is being steadily maintained, the only changes being a few minor reductions in spot values and some rather firmer shipment markets. Spanish oils for shipment are all firmer and are moving up. Sicilian oils, although by no means in active demand, are about steady. Japanese peppermint oil is receiving attention, and prices are holding against cheaper bids by buyers.

ALMOND is about steady, with bitter oil at 6s. 6d. per lb., spot; sweet almond is dearer at fully 1s, 9d. per lb., spot.

Ansse (star).—Market is dull, with values unchanged: "Red Ship," spot, in leads, 2s, 2d.; in tins, 2s., and in drums, 1s. 10½d.; shipment, in leads, 1s. 9¾d.; in tins, 1s. 8¼d.; in drums, 1s. 7¾d. per 1b., c.i.f.

BERGAMOT.—There may be isolated shipment offers at cheap figures, but in the main the market is steady for shipment and on spot, despite the rather marked lack of business: spot is about 8s., with occasional cheaper sellers, while shipment is at 7s. 3d. to 7s. 6d. per lb., c.i.f.

Bois DE ROSE.—An acute scarcity of Cayenne is reported here and on the Continent and spot is now not obtainable much under 5s. 3d. to 5s. 6d. Shipment goods are difficult to locate and would be about 4s. 9d. per lb. Brazilian is steady on spot at 2s. 9d., with shipment fully 2s. 6d., c.i.f.

CARAWAY is steady on a slow market: Dutch, double-distilled, about 6s.; crude, 5s. 7d., spot.

Cassia is much steadier, with 80 to 85 per cent. on spot at 3s. 3d. per lb., with shipment at 3s., c.i.f.

CEDARWOOD is holding as quoted on spot at 1s. 6d., with

shipment about 1s. 3d. per lb., c.i.f.

CINNAMON LEAF meets with a small business, with spot dearcr at 3s. 6d. to 3s. 9d.; shipment, 3s. 3d. per lb., c.i.f.

CITRONELLA.—Although business has been rather limited, the market is holding steady at about level figures: Java, spot, 2s. 3d.; shipment, 2s. 1d., c.i.f.; Ceylon, spot, 1s. 9d.; shipment, 1s. 5d. per lb., c.i.f.

CLOVE is dull and easy as quoted on spot at about 5s. 9d. per lb. for 90 to 92 per cent.

EUCALYPTUS is in moderate demand and the market is fairly steady: 70 to 75 per cent., 1s. 1d. to 1s. 1½d. per lb.; 80 to 85 per cent., 1s. 2½d. to 1s. 3d. per lb., spot, and slightly less for bulk quantities.

GERANIUM.—The market for Bourbon is fully maintained, with shipment offers firm at 15s. 9d. and spot from 16s. 9d. per lb.

GINGERGRASS is very steady as quoted on spot at about 7s. 3d. per lb.

JUNIPER BERRY (B.P.) is steady, and some business is being done: spot, about 4s. 6d. per lb.

LAVENDER.—There is not much interest in this product, and prices are about maintained: French, 38 to 40 per cent., 8s. 3d. to 8s. 6d.; spot, and shipment, 8s. per lb., c.i.f.; 36 to 38 per cent., 8s. per lb., spot.

LEMON.—A moderate volume of business is being done, but it is below the normal for the time of year. Prices are being generally maintained, although there is occasionally a cheap seller; Sicilian hand-pressed, 3s. 8d., and shipment, about 3s. 6d. per lb., c.i.f.; machine-made, spot, 3s. 3d.; shipment, 3s. 1d. c.i.f.; Californian oil, 2s. per lb., in drums, spot.

LEMONGRASS is firm, especially for shipment: business has been rather better; spot, 2s.; shipment, 1s. 9d. per lb., c.if.

LIME is fully maintained at recent advances: genuine distilled on spot. from 42s. 6d. per lb.; hand-pressed, from 52s. 6d. per lb.

Mandarin is unchanged with a limited small business passing: spot, 14s. 3d.; shipment, 13s. per lb., c.i.f.

Orange.—A little more business is moving, and prices are steadily maintained: Sicilian, sweet, spot, 7s.; shipment, 6s. 6d. per lb., c.i.f.; Californian, spot, 3s. 5d. to 3s. 9d. per lb., as to quantity.

PALMAROSA is steady on a rather slow market: spot, about 8s. 6d.; shipment, 8s. per lb., c.i.f.

PEPPERMINT.—There has been a fair inquiry but not very much business this week. Japanese dementholised, spot, is steady at 4s. 7½d.; shipment, sellers, October-Deeember, 4s. 4d.; buyers bidding 4s. 2d. c.i.f. American oil is unsteady, nominally at 8s. 3d. spot, and shipment about 7s. 4½d. to 7s. 6d. c.i.f.

PETITGRAIN is slightly easier with spot at 4s, 6d. and shipment about 4s. 2d. per lb., c.i.f.

Rose continues very irregular: the average value for reliable material is about 47s. to 49s. per oz., for own distillation, with green seal about 35s. per oz.

SASSAFRAS is offering on spot at about 4s. 3d. to 4s. 6d. per lb., as to origin; business has been limited.

SPEARMINT is steadier with spot holding close up to 10s, per lb.

SPIKE.—Values in this market have advanced, and spot is now in the region of 2s, 3d. It is difficult to obtain offers for shipment from Spain, but intimations of dearer prices on account of poor crops and higher labour costs are being received.

#### Fixed Oils, etc.

Widespread depression and still cheaper quotations have to be recorded in this market. Business has been unusually dull in practically all directions. Palm oil is again easier and is now at almost any figure for business; coconut oil is easier, with very little business passing. Turpentine is flat. Linseed oil is steady but is still quoted at recent low levels. ACID OILS.—Dull, with values hardly maintained: coconut and/or palm kernel, 23s.; ground-nut, 16s.; soya, 13s. 9d., spot. Castor is slack, with values unchanged: pharmaceutical, 39s. 6d.; first pressings, 35s. 6d.; seeond pressings, 32s. 6d. (barrels); cases, £4 per ton extra, ex mills, Hull, in not less than one-ton lots; Madras, 29s. 6d. (barrels), c.i.f.; Bombay, 29s. 6d. (drums), c.i.f. Coconut is easier and very dull: deodorised, 28s. 6d. (barrels), spot; Ceylon, 23s. 6d. (drums), c.i.f. Cotton is again slightly easier and the market has been flat: deodorised, 26s. 6d.; common edible, 24s. 6d.; soapmaking, 23s. 6d.; crude, 21s. 6d. (barrels), spot. Groundbuth has been practically idle and is unsteady: deodorised, 28s. 6d. (barrels), spot; crude Oriental, 25s. (drums), c.i.f. Linseed (Raw, naked) values are about unchanged after the recent sharp declines, closing steady: on spot, 16s.; August, 14s. 74d.; September-December, 15s. 14d.; January-April, 16s. Boiled oil, on spot, 18s. 3d. Olive is about steady on a dull market: edible, 4s. 10d.; B.P., 3s. 11d. per gallon, in 40-gallon barrels. Palm shows a further all-round depreciation, with the market flat and now at extremely low levels: Lagos, 16s. 6d.; softs, 15s. 6d.; redd, 22s. 6d., soot. Rape is about steady, but business is slow: refined, 30s.; crude, 28s. 6d., spot. Resin has been mostly dull, but quoted values are maintained: B, 10s.; D, 10s. 6d.; F/G, 10s. 9d.; N, 14s. 9d.; W/G, 17s.; W/W, 18s., ex wharf. Turpentine has remained lifeless, with quotations about unchanged. Total London stocks, 15.130 barrels: on spot, 47s.; September-December, 35s. with little doing.

# Correspondence

Letters should be written on one side of the paper only. Correspondents may adopt an assumed name, but must in all cases furnish their real name and address to the Editor.

## Izal for Sale by Persons other than Chemists

SIR,—At their meeting this month the Council of the Society had before them a sample of a new pack of Izal which had been put on the market by Newton Chambers & Co., as from the beginning of August. Except that it is not enclosed in a carton the bottle is the same as that in which Izal is sold by chemists, and on a superficial examination the labels on the four panels are similar to the labels on the bottles supplied to chemists. The labels of the new pack have been so worded, however, as in the opinion of Messrs. Newton Chambers to bring this pack within the exemption in favour of preparations for agricultural and horticultural use provided for in the Schedule. Izal packed in tins has, as is well known, been put on the market to be sold under this exemption for some time past. The view of the Council is that the bottles are not so labelled as to come within the exemption, and they have instructed me to take the necessary proceedings under the Pharmacy Acts to ascertain whether or not Izal in the new pack may legally be sold by unqualified persons. I should add that Messrs. Newton Chambers & Co. have acted throughout with the greatest courtesy and are facilitating the bringing of the test case. A letter in these terms is being sent to a number of periodicals circulating among those likely to stock the new pack in order that they may know that it is the view of the Council of the Pharmaceutical Society that sales by them of this preparation are contrary to the Pharmacy Acts.—Yours faithfully, Hugh N. Linstead, Secretary.

Hugh N. Linstead, Secretary 17 Bloomsbury Square, London, W.C.1.

## The Proposed B.P. Chemical Food

SIR,—The Pharmacy Subcommittee's report on Parrish's syrup (C. & D., August 8, p. 188) suggests a formula which is that of the B.P. Codex 1923, excepting that it contains more phosphoric acid. The B.P.C. orders 75 millilitres of acid s.g. 1.5 for I litre of Parrish's syrup. The report orders 55 millilitres of a stronger acid s.g. 1.75), which is equivalent to 84.4 millilitres of acid s.g. 1.5. The syrup will contain 12½ per cent. more acid of s.g. 1.5. If the 55 mils. of 1.75 acid were reduced to 49 mils., the syrup would be approximately the B.P.C. strength in acid. The intention was to reduce the acidity, not to increase it. The first report cut it down too much, and it is unnecessary to increase the strength in acid beyond that of the B.P.C. The solution of cochineal should be made by boiling powdered cochineal with distilled water, and filtering hot, the cochineal being again boiled with more distilled water for from three to five minutes, and filtered hot, thus extracting the maximum amount of colour. To allow the solution to cool before filtering makes filtration very slow, and if a hard, alkaline tap water is used filtration will stop, owing to the deposition of a black insoluble colour that only dissolves on adding a trace of phosphoric acid, which changes the colour to red and starts filtration again. The same cause, but to a much less degree, hinders the filtration of a distilled water solution that has been cooled. Why cool the solution before filtering when the filtrate has to be boiled with sugar? Should the filtrate deposit before it is used the deposit will dissolve when boiled with the sugar. The cooling necessary is in the case of the syrupus cocci, as on no account should the iron solution be added to it until it is absolutely cold. The syrupus cocci should be made to a definite volume or weight, i.e., of the strength of syrupus, B.P., and thus more than 350 mils. of the cochineal solution may be used, as water is lost by evaporation. If the syrupus cocci is carefully skimmed and the process completed when cold, the Parrish's syrup is finished and filtration is not necessary. In fact, filtration should be avoided. Straining through muslin will collect any fibres that may have escaped removal in the skimming.—Yours, etc.,

W. FOSTER.

Seaham Harbour.

## **Examination Failures in Botany**

SIR,—Can you explain the figures 109 "referred in botany" out of 320 (the subject which is of least use to a chemist in business). It is very disheartening to the young students who have gone in and think they have passed. Some of the examiners think that a student should know as much as they do on some particular phase of botany. I see Mr. Peck said it was not a matter for the Education Committee. I should think it was about time it was. . . . Yours faithfully,

H. R. LOWTHER.

Mumbles.

## Ambiguous Insurance Prescriptions

SIR,—Dr. Latham (C. & D., August I, p. 166) was apparently unable to read my letter correctly. I said nothing about the payment of one penny; I pointed out that on some of these occasions the expenses swallowed up the dispensing fee, and if medical men had been asked to accept tariff remuneration on the same meagre scale as chemists they would have taken far more drastic action than writing about it. I will only add that from the commencement up to the present time my dispensing has proved accurate enough to satisfy the official tests.—Faithfully yours,

SCRIPTUM (10/8).

## Assistants in Northern Ireland

SIR,—"L.P.S.I.," in your issue of August 8 (p. 195), asked for information about the assistant's qualification of the Pharmaceutical Society of Northern Ireland. At present there are six names on the Northern Register of assistants, and three of these have addresses in the Irish Free State, so that the chemist in Northern Ireland cannot rely much upon this qualification as an aid in his pharmacy. The conditions laid down in Part V of the second schedule of the Pharmacy and Poisons Act (Northern Ireland), 1925, decree that a candidate for this qualification: (a) shall have served an apprenticeship of not less than four years; (b) be not less than twenty-one; (c) have obtained the Preliminary certificate of apprentice to a Ph.C. (N.I.), or be possessed of a sufficiently high standard of education to merit exemption from the Preliminary examination. If candidates were allowed to sit for this examination at the end of three years' apprenticeship, and the age limit was altered from twenty-one to twenty years there would be greater interest displayed by students, who would be more inclined to use it as a stepping-stone on the road to the higher qualification.

Yours faithfully, M. P. S. N. I. (11/8).

## Gift Schemes

SIR,—Certain proprietors of nationally advertised articles are adopting methods which are, to say the least, irritating to retailers, and need concerted action on their part to check the prevalent gift schemes of certain makers from becoming a nuisance. We enclose a copy of a letter we have sent to a well-known firm who are adepts at this thing.—Yours faithfully,

TERNINGWERM (12/8).

#### Concentrated Infusions

SIR,—The contemplated inclusion of concentrated infusions in the new Pharmacopeeia is a belated recognition of time-honoured pharmaceutical preparations; for as far back as one can recollect concentrated in-fusions have been a regular business preparation in general use, despite the fact that in strict pharmacy and ethical dispensing doubt may be felt as to how far in a diluted form they prove the fact by the provent facility and the strict pharmacy far in a diluted form they may represent freshly pre-pared preparations. The fresh infusion—apart from whatever medical property it may possess—is essentially a wasteful preparation, and if in many instances the crude ingredients were worth shillings in place of pence, an economical method of exhibiting these drugs would have long since been devised. It is only needful to mention, too, infusion of hops and decoction of cin-chona, the residues from which I have always thrown away with regret at the loss entailed—I should say the waste. Whether the contemplated preparations the waste. Whether the contemplated preparations will actually represent r to 7 preparations does not matter very much (and I say this advisedly) so long as the pharmacist can be assured that the medicinal properties are contained in the finished product, and the patient has concurrent benefit. Given good raw material, the methods will ensure galenicals of an even quality. There is one regretful feature—that the methods are not those which can be adopted for general counter use, not because they are impossible, but for the economic reason that processes involving the use and recovery of spirit can only be conducted on a business scale in large lots; hence the manufacturer with the necessary equipment already at hand must of necessity become the source of supply. As to the actual processes themselves, these have already appeared in your columns; broadly speaking, the formulas are commendable, subject to the reservation I have mentioned.—Yours, etc..

Frank English (11/8).

## Subscribers' Symposium

For interchange of opinion among "C. & D." readers and brief notes on business and practical topics.

Photographic Sales after Closing Time

I was surprised to read an opinion that the sale of films could take place after the closing hour, although there is nothing to prevent a chemist installing an automatic machine for the sale of films or any other article at any time. But a different question arises in regard to the other section of the photographic trade. Would it be permissible to take in orders for D and P. work, or to hand out finished photographs after the closing hour or on the evening of early closing day? In this case it is not a sale of goods, but the taking of orders and delivery of work done, and on the face of it it would seem that this would not come under the restrictions.—Phofil (10/8).

## Breaking Rules

The experience of "Torcy" (C. & D., June 27, p. 803) is not an unusual one; similar instances happen at intervals where there are several pharmacies situated fairly close together. I have had customers bring back articles, after I had explained why I could not serve them, to show me that they had obtained them for the asking without any formalities not far away. often do these spoilers of their own craft successfully break the rules without being caught? In the eyes of the public, who know little and care less for regulations so long as they can get what they require at the moment, the conscientious chemist is merely a fussy busybody whose premises are to be avoided in the future. I have had the experience of "Torcy" of being asked to oblige another shop with some item which I have been unable to sell in such a case the. reply is easy, to tell the would-be borrower that he can be obliged in lawful business hours —Conscience (7/7)...

# Legal Queries

H. H. (9/8).—The inclusion of the word "chilblains" either on the label or in any advertising material re-ferring to the article renders it liable to medicine-stamp

J. A. G. (22/6).—The form in which the formula of the powder is printed on the label is immaterial, provided it is a complete disclosure of the ingredients. However, in addition to the formula the words "no proprietary rights are claimed in the preparation of this medicine "must appear on the label and also on the outside wrapper, if any, in order to comply with the conditions regulating the sale by chemists unstamped of "known, admitted and approved". remedies.

F. H. B.  $(\mathfrak{t}8/7)$ .—A chemist occupies a shop and house as tenant of a bank. He lives on the premises. There is no lease and the premises come within the terms of the Rent Restriction Acts. Is the tenant entitled to sell his stock and fixtures and to continue to reside on the premises? Has a bank the right to turn out a tenant without payment of compensation? [In our opinion, the sale of the stock and fixtures will not affect the chemist's right to the protection from eviction afforded by the Acts. As regards recovering possession of the premises, a bank is in no better position than any other landlord, nor is it bound to compensate an outgoing tenant when enother landlord would not be required to do so.]

# Miscellaneous Inquiries

When samples are sent particulars should be supplied to us as to their origin, what they are, what they are used for, and how. We do not undertake to analyse and report upon proprietary articles nor to publish supposed formulas for them.

H. J. (23/8).—PILL FOR CONDITIONING PIGEONS.—This pill is composed of vegetable extract and vegetable powder, which is partly or wholly of leaf origin. The ash reveals no element of significance. The vegetable powder could be identified by systematic investigation.

R. C. H. (18/8).—Udder salve.—This appears to be a mixture of eucalyptus oil and a fixed oil which bears the characteristics of mustard oil.

J. H. (23/8).—Tonic food.—This powder contains, probably as its principal component, a peptone-like substance. It is entirely soluble in water, either hot or cold, and is therefore not albuminoid. It yields 8.8 per cent. of ash in which sodium is dominant, but there is also a substantial quantity of potassium and a little magnesia and calcium; no phosphorus is present. A systematic analysis would be necessary to define the preparation satisfactorily.

# Retrospect of Fifty Years Ago

Reprinted from

"The Chemist and Druggist," August 15, J881

## The Principle of a Curriculum

The Pharmaceutical Council have now definitely committed themselves to the opinion that a compulsory curriculum of education of some sort, to be imposed upon all candidates for examination, is desirable. That they will be less unanimous when they come to discuss details is quite possible, but as far as this Council is concerned the principle is established. That is to say, the principle of its desirability. Its accomplishment depends not upon them, but upon the good pleasure of the Privy Council.



## [Commenced C. & D., July 5, 1924]

Vanilla is the name given to the aromatic fruits of Vanilla planifolia, Andrews, a native of the hot regions of Eastern Mexico, now diffused by cultivation through other tropical countries. The plant is an orchid growing in moist shady forests; it has fleshy stems and greenish flowers, and climbs trees by means of its aerial roots. The Spaniards discovered vanilla in Mexico early in the sixteenth century, and introduced it into Europe, but it long remained scarce. Later it was imported into France via Spain, and found a use in flavouring chocolate and scenting tobacco. It was admitted to the London Pharmacopæia in 1721, and was known to druggists for a time; but it disappeared from their shops, and was taken up by confectioners. The French, early in the nineteenth century, began the cultivation of vanilla in their colonies of Madagascar, Réunion, Mauritius, Bourbon and the Society Islands; the Dutch introduced it into Java and Madura. The cultivation is simple; the plants are propagated by means of cuttings or short preces of the fleshy stems, which are fastened to the trees and soon strike root, attaching themselves to the bark. In vanilleries the shots are trained on trellises or wire supports. The plants produce fruit in three years, and continue to bear for thirty or forty years. V. pompona, the West Indian vanilla, has thicker and shorter pods.

CULTIVATION.—The fertilisation in the Mexican forests

is effected by insect agency, as that of the stingless bee, but now in all tropical islands it is performed by artificial means. A thin, sharp-pointed piece of bamboo, held in the right hand, turns back the rostellum that covers the stigma; by suitable pressure of the thumb and finger the anther cap rises and exposes the pollen, the clubshaped grains are removed and placed on the stigma.

A native expert can pollinate 1,000 flowers in one day. The beans mature, according to the weather, in from four to seven months. But the drying and curing of the pods are the principal operations in preparing vanilla for the market. The pods are gathered when of a yellow or greenish shade, and are not allowed to hang longer or greenish shade, and are not allowed to hang longer on the vines, or they will split when drying. There are four principal methods of curing:—(1) Boiling water process; (2) Mexican process; (3) Guiana process; (4) Peruvian process. Under (1) the beans are boiled, exposed to the sun and then dried in a special room. Under (2) the beans are piled up in heaps in a shed out of rain and sun as corn as they are gathand. The out of rain and sun as soon as they are gathered. In a few days they begin to shrivel and they are then treated by the "sweating" process. The beans are then sun dried for about two months, bundled and marketed. In both (3) and (4) the beans are finally smeared with oil. Tahiti is one of the principal producing centres as regards quantity, but the quality is poor. The beans are low in vanillin content and have an odour suggestive of a mixture of vanilla, heliotropine and plums. Mexican vanilla is of fine quality and a large quantity is produced. Madagascar vanilla is produced from V. planifolia, and its cultivation is regarded as one of the important industries of Madagascar. In Réunion the highly-esteemed Bourbon vanillas are produced. The following analyses of two samples of vanilla beans were made by König,

| but the vanillin content has | been omitted | :         |
|------------------------------|--------------|-----------|
| - 41 - 3                     | Per cent.    | Per cent. |
| Water                        | 25.85        | 30.94     |
| - Nitrogenous matter         | 4.87         | 2.56      |
| Wax and fat                  | 6.74         | 4.68      |
| Sugars (reducing)            | 7.07         | 9.12      |
| Non-nitrogenous extra        | active 30.5  | 32.9      |
| Cellulose                    | 19.6         | 15.27     |
| Ash                          | 4.73         | 4.53      |

The following results of vanillin contents were obtained by Tiemann and Haarman for various beaus: -Mexican, by Tiemann and Haarman for various beaus:—Mexican, (1) First quality, 1.69 per cent.; (2) first quality, 1.86 per cent.; (3) medium quality, 1.32 per cent. Bourbon, (1) First quality, 2.48 per cent.; (2) first quality, 1.91 per cent.; (3) first quality, 2.90 per cent.; (4) first quality, 1.97 per cent.; (5) first quality, 2.43 per cent.; (6) medium quality, 1.19 per cent.; (7) inferior quality, 1.55 per cent.; (8) inferior quality, 0.75 per cent. Java, (1) First quality, 2.75 per cent.; (2) medium quality, 1.56 per cent. Where vanillas have been adulterated with such substances as benzoic acid, these adulterants will be discovered in the ethereal extract after removing the vanillin. Apart from ethereal extract after removing the vanillin. Apart from perfumery, vanilla is mainly used as a flavouring for chocolate, confectionery and liqueurs. Hanns has recommended the following method for the determination of vanillin in the beans:—Three grains of crushed beans are exhausted with ether in a Soxhlet tube. the ether distilled off at low temperature, the residue dissolved in a little ether, the solution filtered and the filtrate cautiously evaporated. The residue is treated in a water bath at 60°, with 50 c.c. of water; 0.25 grains of metabenzhydiazide is next added to the aqueous solution in a stoppered flask, the mixture being kept for two or three hours at 60°, and then agitated occasionally for twenty-four hours. The vanillin is precipitated quantitatively as vanillin-meta-nitrobenzhydiazone. The precipitate is washed with three successive quantities of petroleum ether to remove fat, washed with water and then again with petroleum ether and then dried for two hours at 100°. The weight multiplied by 0.4829 gives the amount of vanillin present.

Description.—Vanilla occurs in commerce in fleshy, flexible, stick-like pods, 7 to 8 in. long and  $\frac{1}{2}$  in. broad, They have a compressed form, attenuated and hocked at the stalk-end. The surface is brown or red-brown in colour, furrowed, shining and unctuous, and often beset with an efflorescence of minute colourless crystals. The pod splits lengthwise into two unequal valves, revealing a number of minute, shining, hard, black seeds, lenticular in form, imbedded in a viscid aromatic juice. chief odorous constituent of the beans is vanillin, a substance widely diffused in the vegetable kingdom, but this is modified by aromatic bodies, such as anisic alcohol and anisic anhydride. (See Vanillin.) Besides vanillin and vanillic acid the beans contain 11 per cent. of fixed oil, 2-3 per cent. of resin, sugar, gum and calcium oxalate. The amount of extractive by dilute alcohol should not be less than 12 per cent., and the ash should not exceed 6 per cent. The chief use of vanilla is as a flavouring agent for chocolate, ices, cream and confectionery. Workmen handling the beans should wear gloves, as dermatitis has been known to affect them.

COMMERCE.—There are several varieties of vanilla beans on the market recognised by their size, colour and odour. In Mexico there are the large (coriente), most valuable (papautha), small and light-coloured (vainilla simarona), the medium (vainilla mestiza) and the rounded (puerca). The bulk of the Mexican bean is consumed in the United States, with imports about 200,000 lb. a year. The greatest proportion of vanilla comes from the French Colonies of Madagascar and the outlying islands, such as Réunion and the Comoros. Marseille being the principal home port for the shipping lines trading with Indian Occan islands, a great amount of transhipment of vanilla is effected from this port. In 1928 and 1929 the exports from France to America were more than double the quantity in 1925. In recent years the exports from Java and Madura to Holland have shown a great increase. The following statistics are taken from the Tropical Products Section of the U.S. Department of Agriculture:—

Production of Vanilla Beans (in thousands of lb.)

|                                                                                | 1929-30                         | 1928-9                          | 1927-8                                | 1926-7                                | 1925-6                                |
|--------------------------------------------------------------------------------|---------------------------------|---------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| Madagascar, Comoros, etc. Réunion Seychelles Mexico Society Islands Guadeloupe | 1,433<br>137<br>200<br>165<br>4 | 2,533<br>176<br>7<br>225<br>132 | 2,515<br>256<br>7<br>225<br>180<br>25 | 1,539<br>154<br>3<br>300<br>103<br>26 | 1,235<br>176<br>4<br>220<br>176<br>42 |

Smaller and irregular supplies come from Panama,

# The C.&D. Commercial Compendium



Barbados and other West Indian islands, Brazil, Malaya and Ceylon. On account of the present low values no particular expansion of the world's supply of vanilla can be recorded. The hope of a better market depends upon the improvement in the world's commodity markets or the restriction in production, whether through deliberate action or through the corrective forces of Nature.

Vanillons of European commerce are the fruits of Vanilla Pompona, Schielde, a plant of South America and Mexico, cultivated in the West Indian is and of Guadeloupe. The fruits are the vainilla pompona, boba and platano vainilla of the Spaniards. They are broad and much larger than true vanilloes, and are shaped somewhat like the plantain, being four or five inches long and \( \frac{3}{4} \) to 1 inch broad; they are frequently sharp-angled, brown or red-brown in colour, usually split open and free from efflorescence. They often have transverse markings caused by the twine by which they are tied during the process of curing. Their odour resembles that of tonka bean or benzoin, and is due to the presence of 0.4-0.7 per cent. of heliotropine in lieu of vanillin. Vanillons are chiefly used in perfumery, but are for the time being practically extinct.

Vanillin is methoxy-protocatechnic aldehyde, C<sub>8</sub>H<sub>8</sub>O<sub>2</sub>, forming fine white needle crystals, melting at 81°82°, or, when chemically pure, at 82°-84°; boiling point 285°, at 15 mm. pressure, 170°. Vanillin occurs to the extent of about 2 per cent. in the vanilla pod, of which it is the chief odorous constituent. It also occurs to a small extent in the flowers of Nigritella suaveolens, in oil of clove, oil of Spiraa ulmaria, balsam of Peru, Sumatra benzoin, Siam benzoin and balsam of tolu. It has also been noted in asparagus, beetroot, asafœtida, and in the seeds of Lupinus albus and of Rosa canina. In 1874 Tiemann first prepared vanillin artificially by oxidation with chromic acid of the glucoside coniferin. Coniferin was either first hydrolysed by emulsion or by boiling with dilute acid, with formation of glucose and coniferyl alcohol and the latter then oxidised to vanillin, or the glucoside was first oxidised to gluco-vanillin, which on hydrolysis gives glucose and vanillin. In 1875, Tiemann discovered an improved method by oxidation of eugenol, and this application is the basis of most of the presentday processes of manufacturing vanillin. Eugenol was separated from clove oil by extraction with caustic soda lye, acetylated by boiling with its own weight of acetic anhydride, dissolved in acetic acid and oxidised with potassium permanganate to acet-vanillin. Sodium carbonate was then used to render the solution alkaline, manganese hydrate filtered off, and the filtrate evaporated, After acidifying with sulphuric acid, the vanillin was extracted with ether and the ether then removed by evaporation. When eugenol is oxidised, a considerable quantity of homovanillin is formed, and, because of this, it was later found better to first convert eugenol to isoeugenol by treatment with potassium hydroxide solution. The object of first converting the eugenol into its acetyl derivative was to protect the hydroxyl group from oxidation. Another method involving conversion of eugenoi into benzyl-eugenol is claimed to have the advantage that, on subsequent treatment of the resultant benzyl-vanillin with concentrated hydrochloric acid, benzyl chloride is regenerated and can be used again. Besides potassium permanganate, many other oxidising agents have been suggested for the conversion of eugenol or isoeugenol into vanillin, including acid sodium or potassium bichromate, chromyl chloride, ozonised air or oxygen, oxygen ionised by ultra-violet light, hydrogen peroxide, peroxides of sodium, barium, lead or manganese, ammoniacal copper oxide or lead or mercury oxide in alkaline solution, etc. All processes for the oxidation of isoeugenol to vanillin are claimed by Esclafit to give a very much greater yield if the isoeugenol is dissolved in a fairly high-boiling hydrocarbon such as toluol. It is impossible, however, to avoid the formation of vanilloylcarbonic acid in appreciable quantity, in spite of precautions. As distinct from the foregoing methods which produce vanillin artificially from naturally occurring bodies, vanillin may be synthetised without the aid of any natural product. Most of the patented processes for the true synthesis of vanillin fall into two categories: (1) Those in which an aldehyde group is introduced into the guaiacol molecule, and (2) those in which the appropriate—OH group in protocatechuic aldehyde is methylated. Guaiacol is the source of much synthetic vanillin, and though it is a natural constituent of beechwood creosote and can be obtained therefrom, synthetic guaiacol prepared by the diazotisation of ortho-anisidine is usually employed. Guyot and Guy claim that a 70 to 80 per cent, yield of vanillin may be obtained by the condensation of guaracol with a-\beta-diketonic esters and oxidising the product by boiling with copper acetate, giving copper the product by boiling with copper accuracy, survivily vanilloyl carbonate, and from this vanillin may be vanilloyl carbonate, and from this vanillin may be vanilloyl carbonate. The obtained by heating with dimethyl-p-toluidine. disadvantage of this method has been the production of the diketonic esters. In order to surmount this obstacle a process has been recently patented by which may be obtained the oxidation, by Guyot and Guy's method, of guaiacyltrichlormethyl-carbinol after first saponifying it by boiling with water for several hours. Among the adulterants found in vanillin are benzoic acid and acetanilide, both of which may be readily detected.

Vanishing Display Effects.—Display devices with novel or mystifying effects have certain advantages for occasional use in the chemist's window. They arouse the interests of the passer-by, and, if handled skilfully by the window-dresser, they hold that interest only momentarily, and then pass it on to the products with which they are associated. For example, a sign might be used to advertise a branded dentifrice, so that people approaching the window from one angle would see a woman in the act of unscrewing the cap of a tube of dentifrice, and then as they passed the sign the picture would change to show the same person actually cleaning her teeth. This sign, used by itself, would have a certain amount of publicity value; but placed in juxtaposition to a display of the actual product it purported to advertise, with prices and sizes clearly indicated, it would be likely to have the more valuable effect of creating immediate sales. Some of these display devices with mystifying effects are constructed by the aid of specially placed mirrors to give a two-way view, so that as one picture disappears another takes its place. Others are ingeniously contrived to create the illusion of disappearing figures by means of a painted or stencilled screen revolving round an electric lamp placed behind a sheet of opalescent glass. For this no mechanical aids are necessary, but the screen or card-board drum is kept moving by the heat from the lamp. Flanges are so fitted upon the drum that the hot air as it rises from the lamp comes into contact with them, and the slight resistance which they offer causes the infinitesimally heavier pressure of the air to move them one after the other continuously, and thus to set the drum in motion. Another disappearing device comprises thin sheets of corrugated metal so perforated that daylight or artificial light illuminates the sign in front to give different effects from different angles, so that the picture appears to change as the person looking at it passes by. Several types of illuminated letter signs for use in the window are so constructed that they give the same disappearing effect as the news signs used high up on building at night, so that a chain of sales messages can be made to pass before the eyes of the window-gazer. Another window sign with disappearing effects resembles a miniature cinema projector. A small compact machine is concealed in the front of the window, and by the aid of perforated bands of letters which pass before a beam of light, spells out words in letters of any colour upon a suitable spot on the window background, or upon a specially arranged screen, fixed in conjunction with displays of the merchandise, described by the illuminated letters.

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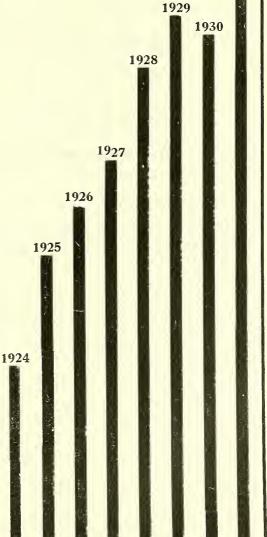
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63 Grove Rd., Bow, London, E.3 LTD.

# CONSTIPON

THE STEADY SELLER

Tablets per box 3d., 6d. and 1/-

London Wholesalers—BUTLER & CRISPE, SANGERS Ltd., MAY ROBERTS & CO., F. NEWBERY.

Window displays arranged.

CONSTIPON

65 WEST REGENT STREET GLASGOW



# ollosol Linc (ream

The NEW elegant packing of this valuable medicated cosmetic makes a widespread appeal for medical, nursery and toilet use.

Its selling attraction is enhanced by supplies of samples for counter distribution.

A most remunerative proposition to the retailer.

Telegrams:

Collosols, Harles, London



Sells at

1/3

per tube

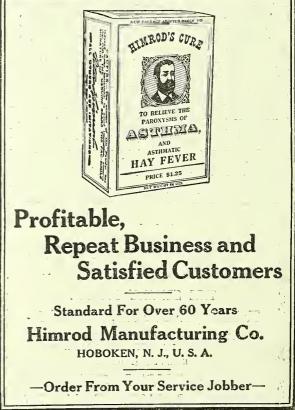
A display container of I doz. tubes.

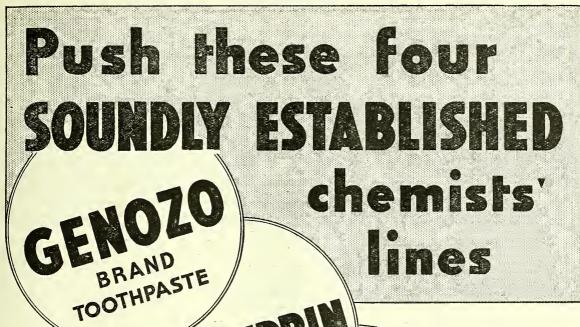
CROOKES LABORATORIES

(BRITISH COLLOIDS, LTD.) GORST ROAD, PARK ROYAL, LONDON, N.W.10 Willesden 6313 (three lines)

Telephones.

PROFITS Snowfire Cream-always in demand, always making new friends, is a profitable line to handle. Women everywhere are recommending it one to another. Their enthusiasm means repeat orders and extra profits for you. Get in good stocks now. Manufactured by F. W. Handbag containers 3d. Ltd., Sunnydale Works, Dainty 6d. Derby.





BRAND OF ASPIRIN

# Because -

THE TRUE TONIC FOOD Genatosan Ltd. give you a fair deal and their products are recognised as real "chemists' lines." You are supported by big-scale advertising throughout the year and all Genatosan lines are approved and prescribed by the medical profession. You can always count on repeat orders for Genatosan products—for they do what is claimed of them. And, above all, Genatosan products offer you an uncommonly high percentage of profit, particularly when bought on direct cash terms.

WULFING BRAND

And remember! Whenever you wish to make a special window display, colourful and up-to-date material will gladly be sent on request.

# GENATOSA

GENATOSAN LTD., LOUGHBOROUGH, LEICESTERSHIRE.

Telephone: Loughborough 292.

Telegrams: "Genatosan, Loughborough."



EDME Ltd. will be pleased to quote you for

"NATIONAL MARK" MALT PRODUCTS.

Guaranteed made from English Barley Malt

# Malt Extract with Cod Liver Oil

Customer's own name and address printed on label.

Write for Samples and Trade Terms to:

EDME Ltd., 122, Regent St., LONDON, W.1. Telephone: Regent 7525.
Telegrams: "EDME, PICCY, LONDON."

#### FROM A FAMOUS SANITARIUM

Lacto-Dextrin, a food for changing the intestinal flora, 12 oz. packings, 4/-; 5 lbs. 22/-.—Psylla, intestinal vegetable lubricant, 10 oz. packings 4/-; 5 lbs. 24/-.—Both these foods are being regularly advertised to the Medical Profession throughout the year. Liberal discounts. Order through your wholesaler or write direct to:

Wholesale & Distributing Agents for United Kingdom & Irish Free State



# MASON'S EXTRACT HERBS

May we have the pleasure of sending you particulars of our Window Display Scheme?



LL & MASON

NOTTINGHAM

# EADE'S CELEBRATED RHEUMATIC PILLS



and still

\_Eade's Pills retail \_at 1/3 and 3/-\_Other specialities \_& sales literature may be had on \_application General Press Advertising is always in progress, and this continually reminds the public, who have the greatest confidence in Eade's Gout and Rheumatic Pills

Do not fail to take advantage of the sales-value of a well advertised product, and profit by it.

GEORGE EADE, LTD., GOSWELL ROAD, LONDON, E.C.I



Reg. Trade Mark

# Nature's Cure is the best



Fresh evidence is constantly forthcoming that the synthetic vitamin products which purport to take the place of the natural vitamins of Cod Liver Oil are not only inferior but may even be injurious in their action.

It has, in fact, proved impossible to manufacture any effective substitute for Cod Liver Oil, nature's own medicine, which is so rich in the valuable vitamins A and D in the right mutual

Every barrel of the world-famed Norwegian Cod Liver Oil is exported under the supervision of the Norwegian State.

> A TEASPOONFUL OF NORWEGIAN COD LIVER OIL CONTAINS MORE VITAMINS THAN





National Committee for Promoting the Consumption of Norwegian Cod Liver Oil, Post Box 226, Bergen, Norway.

Do not place your contract

# Malt & Oil

before obtaining our prices.

THE BRITISH DIAMALT CO.

Malt Product Manufacturers,

SAWBRIDGEWORTH - HERTS.

SHOWS OVER 33% PROFIT.

# GINGER

ONE TIN MAKES TWO GALLONS OF

Sparkling Home-Brewed Ginger Beer NO BOILING OR STRAINING REQUIRED.

36/- per gross, nett. Carriage Paid. Packages Free.
3 doz. sample lot, post paid, 10/-. Advertising & Show Matter.

SOLE MANUFACTURERS:

HOLIDAY & CO, LTD., City Mills, Durham.

Season-1931



STEVEN 7 York Street, Glasgow.

Manufacturers :

BRÖDR. AARSÆTHER A/S, Aalesund, Norway.

LARGEST MANUFACTURERS OF COD LIVER OIL IN NORWAY. SPECIALITY-Cattle and Poultry Feeding Oils.

Stocks always held in London.

In 25-gallon tin-lined barrels.

SOLE AGENTS

FOR U.K.: Tel. Add.: "FREUDENRUF." 21 Mincing Lane, LONDON, E.C.3. Tel.: ROYAL 6600. Codes used: A B C. 4th and 5th Edit., Bentley's, and Private.

Introducing

Galen was a pioneer of A.D. 131 or thereabouts. Galen Products are pioneers of A.D. 1931.

Galen Products are the expression of an ideal—to give the very best possible medicated lozenges, pastilles, etc., at popular prices, and with an adequate profit margin.

Galen "Mints," for example, are hand-made lozenges with a high content of real Mitcham ol. menth. pip.

Similarly Galen Cinnamon Lozenges rely for their efficacy on the finest oil of cinnamon obtainable.

In pastilles there is "Sister's Throat Pastilles," a warming and soothing pastille of the Chlorodyne type.

Galen Products are sold in 6d. tins (Sister's Throat Pastilles 6d. and 1/-), and are obtainable through wholesalers only.



Write for Samples and Trade Prices to—

GALEN PRODUCTS CO., LTD. STOCKPORT.

('Phone: 3614.)

# Liquid Paraffin B.P.

# Stemco Ltd.

# ... Win More Sales With "WINNING COLOURS" Dyes!

# MORE AGENTS STILL WANTED

Send to-day for full particulars, and have "Winning Colours" in the race for sales.

Unequalled for strength and beauty of colour, with correctness of tone, these well-known dyes will bring you many repeat sales. They attract customers to your shop, for, oncetried, "Winning Colours" Dyes are always used.

Particulars of this profitable agency, window display material, etc., will be gladly supplied. Convincing and attractive advertisements, which appear in the National Dailies from time to time, will stimulate the public interest, and bring you increased demand.

Buy the Dyes of Cup Fame!

The UNITED INDIGO & CHEMICAL Co. Ltd. HUDDERSFIELD - YORKSHIRE



# BEECHAM'S PILLS

LARGEST SALE OF ANY PROPRIETARY MEDICINE IN THE WORLD—PRICES PROTECTED UNDER P.A.T.A. REGULATIONS—EXTENSIVE ADVERTISING ENSURES CONSTANT DEMAND—NO SAFER INVESTMENT—NO BAD STOCK.

# BEECHAM'S POWDERS

WELL ADVERTISED—EASY TO HANDLE—STEADY AND INCREASING SALES—GOOD PROFITS.

£3 parcels are now available for either BEECHAM'S PILLS or BEECHAM'S POWDERS or assorted BEECHAM'S PILLS and BEECHAM'S POWDERS, and can be obtained direct or through wholesalers. These £3 parcels carry the usual  $2\frac{1}{2}\%$  discount and a further 5% discount for window display—carriage paid—monthly account.

STOCK MORE — SHOW MORE — SELL MORE BEECHAM'S PILLS and BEECHAM'S POWDERS

BEECHAMS PILLS, LIMITED ST. HELENS, LANCS.

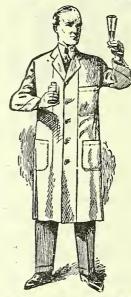
Telephone: 1230 St. Helens

Telegrams: Beecham, St. Helens

NORVIC

CRÉPE BANDAG

# OVERALL



## SEND FOR NEW ILLUSTRATED LIST

Jackets and Coats of very superior quality, made from the most reliable materials, smartly cut and thoroughly well finished in every detail.

WHITE DRILL JACKETS 6/11, 8/11, 10/6 KHAKI DRILL COATS 6/11, 8/6, 10/6, 12/6, 14/6

WHITE DRILL COATS 7/6, 9/6, 12/6, 13/6, 15/6

BLACK DRILL COATS 15/6 **GREY COTTON COATS 7/6** 

STOCK SIZES: 34 to 44 chest. Special pockets and little adjustments can be made without extra charge. POSTAGE on single coat 9d., but 20/- orders upwards carriage paid.

SPECIAL PRICES FOR LARGE QUANTITIES

# GARDINER

& CO. (The Scotch House), LTD.

1, 3, 5 Commercial Road, LONDON, E.1 Telephone: Bishopsgate 6751.

Established 1839.

#### PHOTOGRAPHIC SEASON

There will be good D. & P. business this year. See you get your share. Our attractive printing will help you. So will our Free Block Service that places over 100 illustrations, etc., at your disposal.

ELLAMS & CO., Pharmaceutical Printers, 33 Hanover Street, Liverpool

## DOCTOR'S ADHESIVE PLASTERS with Zincoxide

THAT DO STICK! Ask for Price List and Compare

KAYDOR LTD., 30 Howland St., London, W.1 Proprietors

Rubber Products



The ORIGINAL and Most Popular

The "K." All wool in knitted cover, very soft.
The "CELTEX." Made of Cellulose for easy disposal.

FROM YOUR WHOLESALE HOUSE, PLEASE



Fig. 1

# POISON BOTTLES (ALL KINDS)

Fitted with BLACK FLANGE I. R. CORKS and C. H. BRUSHES make an ideal pack for Tincture of lodine, or Fittings as Fig. 2 may be had to fit your bottles.

ASK FOR SAMPLES AND PRICES

M. J. FECHER, LTD.

CUCKOO HOUSE, 10 DOD STREET, LONDON, E.14



Fig. 2



# What it means

When a chemist sells Rendell's Pessaries he knows he is offering an article which is backed by a reputation of 50 years. Made under the supervision of qualified chemists, each one can be absolutely relied upon and is fully efficacious. Thus do Rendell's Pessaries justify the confidence of the trade and users alike.

# W. J. RENDELL, LTD. HARDWICK HOUSE

161/165 Rosebery Av. LONDON, E.G.1

# IRIENIDIEILIL'S for IRIEILIAIBIIILITY



# INSECT BITE STICK

Be prepared for the Mosquito Plague which is expected this summer



MADE IN TWO SIZES

SMALL

5/- per doz.

LARGE

8/- per doz.

0 0 0

Supplied in Show Cases of Six

MANUFACTURED BY

WILLIAM TOOGOOD Limited, 77 Southwark St., S.E.1

# Be ready for this demand-

NOVIO Toilet Paper is being advertised regularly in the Illustrated and Women's papers. A special sampling offer is being made which is bound to attract new customers to your shop.

Are you adequately stocked to meet the demand of this publicity? Send a card for trade terms and samples. NOVIO PAPER CO., 26 Grove Park, Camberwell, S.E.5.

The LANCET'S Opinion: "We found that the statements made in regard to the merits of this paper are correct ... free from injurious or irritating substances, is smooth, and, while firm, becomes soft and apparently soluble like thin rice paper in contact with water."



The public is asking for ZEAL CLINICAL THERMOMETERS because they are:

GUARANTEED TO STAY ACCURATE CONSISTENTLY ADVERTISED



# These unique lines GREATER Hot Water Bottle Sales

This range of Animal Hot Water Bottles gives the retail trade the opportunity of selling Hot Water Bottles specially made for children. They are noncompetitive with ordinary hot water bottles, as most families will buy the Animal Bottles in addition to their ordinary requirements. The bottles are made to the high standard of quality which characterises all Macinlop productions, packed in attractive boxes and can be sold with confidence. COLOURS. All bottles are supplied in blue, green, brown, or black and white marble, and can be covered in orange, red or blue velvet.

FIXED PRICES TO PUBLIC.

Covered in Coloured Velvet. Uncovered. "TEDDY" 4/3
"KITTY" 4/3
"BUNNY" 4/6
"DOGGY" 5/-6/-6/-6/3 6/9

NIMAL HOT WATER

MACINLOP LTD.

Head Office: Cambridge Street, Manchester.

Branches at London, Glasgow, Liverpool, Cardiff, Newcastle, Nottingham, Birmingham, Southampton, Leeds, Dublin, Belfast, Cork.

1. Bunny brings brighter er bedtimes. 2. Kitty keeps kiddies cosy 3. I am Teddy Bottle. Take me to bed and I will keep you warm. 4. Doggyde-lights on darkest nights.

NOW READY

GROUP

Leeds, Dublin, Belfast, Cork.

C.F.H. 735

C.F.H. 735

C.F.H. 735 OF OUR FULLY ILLUSTRATED

UP TO DATE

CATALOG

REQUISITES

DRUGGISTS' SUND

This new issue of our Catalogue is conveniently arranged in specialised sections, giving particulars, in great detail, of our manufactures, and those who desire the best, latest and keenest offers will examine it with profit.

The latest price corrections are incorporated, and the Catalogue is an up-to-date guide to a host of Toilet and other Sundries in which you are interested.

SOLPORT'S GOOD GOODS

ESTABLISHED 1857



ESTABLISHED 1857

184-192 GOSWELL ROAD, LONDON, E.C.I



# CORKS\_\_\_MEANS ARMSTRONG

The care taken in the manufacture, grading and final inspection of Armstrong's Corks guarantees consistency throughout the consignment and through the years.

Made from the best cork wood in the world, and not passed to you until they have been individually inspected by experts.

That is why you should specify ARMSTRONG next time you order a supply of corks.

Carefully graded and obtainable in the following:

Gold Leaf Brand Silver Leaf Brand Blue Leaf Brand Green Leaf Brand and N.H.I. Brand

Can be obtained through your usual wholesaler or direct from:

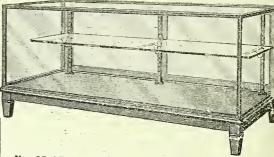
# ARMSTRONG CORK CO., LTD.

Aldwych House, ALDWYCH, LONDON, W.C.2

Telephone: Holborn 7503 (3 lines). Telegrams: Armcorko, Estrand, London.

LIVERPOOL: 10 Preston St. GLASGOW: 54 Gordon St., C.1.

# GLASS COUNTERS BRING MORE TRADE



No. CD/SF 2920. A soundly constructed Display and Serving Counter made in our own works at Holloway Road—6 ft. ×3 ft. ×2 ft. oak or mahogany framing, glazed new 4" drawn plate glass top, front, and ends. Clear glass sliding doors at back. Interior fitted 1 row of shelves 12" wide, brown bronze bars and brackets.

DFFERRED TERMS. An initial payment of, 18/10 secures this counter, and 11 further equal monthly payments of the same amount make it your own complete property.

£10-15-0

Cash Price. Ex. Work

Send for our New List No. C.D.1260.

DUDLEY & COMPANY LIMITED
451 HOLLOWAY ROAD, LONDON, N.7

City Showrooms: 65-66 FORE STREET, E.C.

In the last the sales of



# TOWN TALK

Aguid Silvey botry

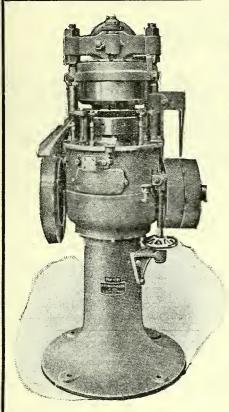
# have increased Fold

Get your share of the trade by ordering from

JAMES WOOLLEY SONS & CO., Ltd.,
Manchester
AYRTON, SAUNDERS & Co., Ltd., Liverporl
BROOKS & WARBURTON (American Drug
Supply Co.), Ltd.

Town Talk Polish Co. Whitby St., Bradford Road, Manchester





# S.W. WILKINSON & CO.

WESTERN ROAD, LEICESTER.

# **Rotary Tablet Machines**

These Machines are now made in 4 sizes:

12-Punch Ordinary for Tablets from \(^38''\) to \(^87''\) diameter.

Output 400 per min.

20-Punch Ordinary for Tablets from \(\frac{1}{4}''\) to \(\frac{1}{2}''\) diameter.

Output 700 per min.

12-Punch Heavy for thick Tablets and Blocks 1" diameter.
Output 250 per min.

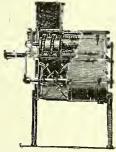
18-Punch Heavy for thick Tablets and Blocks 1" diameter. Output 400 per min.

LISTS ON APPLICATION.

Single Punch Machines made in 5 sizes for Tablets from  $\frac{1}{8}''$  to  $1\frac{1}{2}''$  diameter, also Lozenges.

MACHINES FOR BATH SALT TABLETS

# perfect blemding



Write us for list of Ball Mills, Disintegrators, Millstones and Mills, Drum Sieves, Drying Machinery, etc. Gardner's "Rapid" Sifter and Mixer gives a perfect blend. The special Internal Agitator ensures accurate sifting and mixing of materials, irrespective of the diversity of their proportions; if necessary, ½oz. can be perfectly blended with hundredweights.

# GARDNERS Patent RAPID SIFTER & MIXER

Wm. GARDNER & Sons (Gloucester) Ltd. Bristol Road - - Gloucester

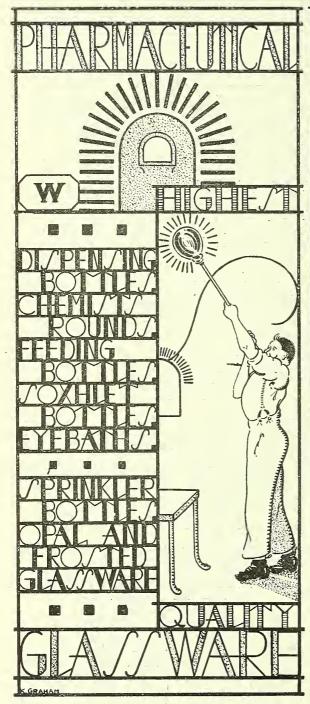
Tel.: Gloucester 2288 (2 lines). 'Grams: Gardner, Gloucester LONDON - 19 Gray's Inn Chmbrs., 20 High Holborn, W.C.1 Telephone: Chancery 7347

# More popular than ever DRUMMER DYES



no increase in price--4º

EDGES, BOLTON, LANCS

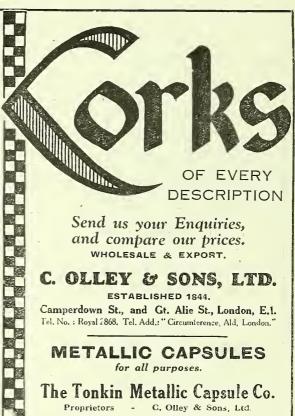


DESIGNERS & MANUFACTURERS OF · GLASSWARE · FOR · PERFUMES COSMETICS · AND · BATH · SALTS

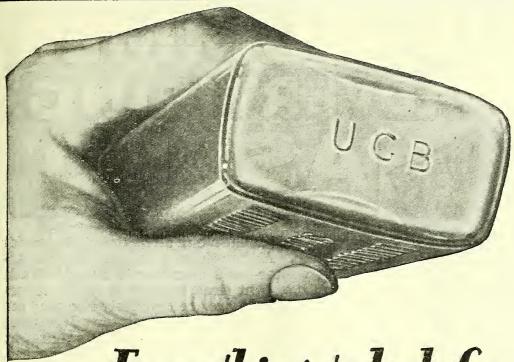
WOOD BROS.GLASS Cº LIMITED

(ESTABLISHED 1828)

BARNSLEY . . ENGLAND







Everything to look for on a Bottle.

IMITATION may be the sincerest form of flattery, but the extent to which the U.G.B. Medical Bottle is imitated in inferior quality is far from gratifying.

Designed some ten years ago as an ideal dispensing bottle, it is now the standard for this purpose. The consistently high quality, accurate capacity and attractive appearance, places the U.G.B. Medical in a class by itself.

The success of this bottle has been greatly enhanced by the introduction of the "WASHED & STERILIZED READY - TO - USE BOTTLE" packed in non-returnable Dustproof Solid Fibre Cartons-supplied either for Corks or complete with Rustless White Enamelled Screw Caps.

Obtainable from all leading Wholesalers.



MANUFACTURERS · LIMITED

The largest manufacturers of Glass Bottles in Europe.

Head Offices:

40/43 NORFOLK STREET, STRAND, LONDON, W.C.2.

Telephone: Temple Bar 6680 (10 lines). Telegrams: Unglaboman, Estrand, London. The 100% Bottle Service for the Busy Dispenser



Strong as Ever! That's our advertising slogan for this summer. Although we increased our advertising last winter—and summer is not generally considered the right time to have a large advertising appropriation, we are definitely carrying out our policy of maintaining "full winter advertising schedule" during this summer. What's more, we hope to increase this again next winter. So you see, our claim of continuous advertising activity is a demonstrated fact. All chemists have to do to obtain the full benefit of this continuous flood of sales producing publicity, is to keep on showing window display material. The "longer you show" the more business you obtain from the advertising—just the same as if you had your name at the foot of the advertisement.

ADVERTISING MATTER ALWAYS AT YOUR DISPOSAL We still have a supply of our new summer window show, stickers, etc. We will gladly send you a supply on receipt of a postcard. We also have in course of preparation an entirely new window display for the coming autumn.

By the way, do you know that YOU CAN OBTAIN 17% MORE.

By the way, do you know that YOU CAN OBTAIN 17% MORE PROFIT BY BUYING 'ASPRO' ON BONUS TERMS?

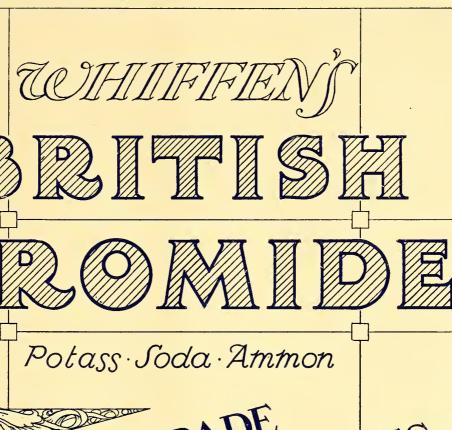
# ORDER 'ASPRO' ON BONUS TERMS FROM YOUR WHOLESALER NOW

\*ASPRO' consists of the purest Acetyl Salicylic Acid that has ever been known to Medical Science, and its claims are based on its superiority.

Agents: GOLLIN & CO. PTY. LTD. ('Aspro' Dept.)
SLOUGH, BUCKS. Telephone: SLOUGH 608

Made by ASPRO LTD., SLOUGH, ENGLAND
No proprietary right is claimed in the method of manufacture or the formula.

DISPLAY 'ASPRO' PROMINENTLY AND IT WILL SELL ITSELF





SEND FOR SAMPLES AND QUOTATIONS TO THE MANUFACTURERS

# WHIFFEN & SONS Ltd.

CARNWATH ROAD · FULHAM

Telegrams "Whiffen London"

LONDON

Telephone
Fulham
0037
(3 lines)

TO WHOLESALE & EXPORT TRADES

**ESTABLISHED 1846** 

MEDICINAL RESINS

EXTRACTS TINCTURES IN BOND OLEO-RESINS

RESINOIDS

WILLIAM RANSOM & SON, LTD.

MANUFACTURING PHARMACEUTICAL CHEMISTS, Distillers of Essential Oils and Cultivators of Medicinal Plants.

HITCHIN, near LONDON.

Telephone: 95 HITCHIN

YCAMORE ST.

DATENT George King & @ IN TINS

"OWN NAME" FORMULÆ PREPARED AND PACKED

STARTING IN BUSINESS?

Write for Ayrton's Booklet

**NEW PHARMACY**"

AUNDERS VERPOOL, Eng.



# THE CHEMIS

LONDON, W.C.2

**AUGUST 15, 1931** 

This Supplement is inserted in every copy of The Chemist & Druggist.

#### THE CHEMIST DRUGGIST SUPPLEMENT

# **ADVERTISEMENT TARIFF**

**ALL ADVERTISEMENTS are** PREPAID, so that remittance must accompany instructions in each case. If it be necessary to telephone or telegraph an urgent announcement this may be done, provided the money is telegraphed at the same time.

NOT LATER THAN

BUSINESSES WANTED and for DISPOSAL, PREMISES TO LET,
PREMISES WANTED, PARTNERSHIPS, GOODS for SALE and
AGENCIES-6/- for 50 words; every additional 10 words or less, 6d.

SITUATIONS OPEN-6,- for 40 words; every additional 10 words or less, 6d. (Box No., 1/- extra.)

SITUATIONS WANTED—2/- for 18 words; every additional 10 words or less,

LEGAL NOTICES, TENDERS, AUCTIONS, and all specially-spaced announce-ments, 1/3 per nonpareil line (12 lines=1 inch single column). (Box No., 1/- extra.)

MISCELLANEOUS (Wholesalers') Section for odd and second-hand lots-10/-for 60 words; 1/- for every additional 10 words or less. (Box No., 1/- extra.)

EXCHANGE COLUMN (for Retailers, etc.)-Twopence per word, minimum 2/-. (Box No., 1/- extra.)

THE CHEMIST & DRUGGIST, 28 Essex St., Strand, London, W.C.2

Telegrams: " Chemicus, Estrand, London." Telephone: Central 6565 (8 lines).

### CLOSING FOR PRESS. MUST REACH US

FIRST POST

ALL ADVERTISEMENTS INTENDED FOR INSERTION IN THIS SUPPLEMENT

#### THURSDAY MORNING.

#### LUDGATE HILL, ESTABLISHED 1846 Telephone No.: CITY 2283 May be consulted at their Offices on matters of Sale, Purchase & Valuation,

WESTERN SUBURB .- Middle-class Retail and Dispensing Business, with N.H.I.; returns under management £1,750 per aunum, with scope for increase; stock and fixtures worth £650; living accommodation and bathroom; rent £48 per annum; held on lease; price £1,000, or valuation terms entertained.

2.—ALDGATE (Near).—General Retail Business, with Kodak Agency; very old-established; returns over £4,000 at usual prices; double-fronted shop; very well fitted; good working etock; comfortable flat over; moderate rent; long lease; valuation terms contacting tion terms entertained.

3.—LEWISHAM.—General Retail Business, with N.H.I. Dispensing; returns average £25 weekly, with scope for increase; well-fitted pharmacy, in good main road position; ample living accommodation; rent £80; held on lease; sub-let £13; valuation of stock and fixtures would be accepted, not more than £500 in all.

4.—CROYDON (Near).—Old-established Family Retail Business, with Kodak Agency; Panel connection; returns slightly over £1,700 per annum; gross profit £668; large corner shop; well stocked; rent £100; sub-let £1 17s. 6d. weekly; long lease; offers invited.

5.—LONDON, W. (Distant Suburb).—Light Retail Business in residential area; returns between £15 and £20 weekly; double-fronted shop, lock-up; estimated value of stock and fittings £350; 19 years lease; price £500, or near offer.

6.—STOKE NEWINGTON.—Good middle-class Business, with Optical connection; returns £2,100 last year, plus £350 from Optics; net profit £750; double-fronted shop; stock and fixtures worth about £800; rent and rates £90; long lease; price £1,600; or valuation terms entertained.

7.-LONDON, N.-Cash Retail Business, with Kodak and Ucal Agencies; returns £26 weekly, plus 600 N.H.I. prescriptions per month; single-fronted lock-up shop with dispensary behind; price £1,000, or offer entertained.

8.—SOUTHERN MARKET TOWN.—Old-established Business; Kodak Agency; returns over £2,000; net profit £502; lock-up pharmacy, well fitted and stocked; long lease; moderate rent; valuation terms entertained.

9.—ESSEX.—General Retail and Dispensing Business, with Kodak Agency; returns at the rate of £1,200 per annum; double-fronted shop; large house; rent £33 per annum; stock and fixtures worth £650; price asked £900.

10.—MIDLANDS.—Old-established Country Retail and Dispensing Business, with Kodak Agency; entirely unopposed; returns last year £2,356; double-fronted shop; 12-roomed house, with garage; rent £57; held on lease, with option to purchase property; population 3,000; stock worth £750; fixtures £150; goodwill £500.

11.—IMPORTANT SOUTHERN TOWN.—Wholesale Business dealing with Toilet Requisites and Proprietary Articles; established many years; vendor retiring; returns over £7,000 per annum; net profit about £700; convenient premises, the free-hold of which may be purchased if required. Full particulars on application application.

12.—DORSET.—Cash Retail Business; returns £100 to £120 monthly, with scope for increase; rent £72 per annum, inclusive; long lease; small flat available; price £650; sound reason for disposal.

13.—WESTERN COUNTY.—General Retail Business, with Wine Licence; returns last year about £2,000; premises occupy a premier position; the property may be purchased for between £1,100 and £1,200, or a lease will be granted at a rental of £80 per annum; stock worth £400; fixtures and goodwill £500.

14.—HANTS.—Cash Drug Store, with increasing turnover; present rate about £20 weekly at usual prices; single-fronted lock-up shop; rent £50 per annum, rising to £60; 14 years' lease; price £550; vendor is willing to allow a small amount lease; price to remain.

# Chemists' Transfers, Valuations for Sale, Stocktaking & Probate SPECIAL TERMS FOR INCOME TAX VALUATIONS

#### & FISH BERDOE

CHEMISTS' VALUERS AND TRANSFER AGENTS, 41 Argyle Square, KING'S CROSS, W.C.1

(One minute from St. Pancras and King's Cross Stations.)

1.—ELTHAM (Near).—Badly-neglected Pharmacy in growing district; unopposed; large double-fronted corner shop; returns, under elderly manager, about £1,500; rent £70; good self-contained flat over, price for quick sale £1,000, being about the value of stock and fixtures.

2.—CO. DURHAM.—Unopposed Light Country Retail, with Kodak and Rexall Agencies; returns last year £1,178; net profit about £250; large, well-fitted shop; stock worth £300; owner, having taken much larger concern, will accept £400.

5.—SOUTH COAST.—High-class Retail and Dispensing Business; has been neglected; present returns £40 a week; scope for being doubled; splendid position; handsome pharmacy; fully stocked; valuation terms arranged.

4.—YORKS (W. Riding).—Light Cash Retail, with Kodak Agency and good Panel; returns about £2,000; net profit £700; audited figures; low rent; good stock; price £1,250.

5.—NORFOLK.—Odd-established Business in busy market town; returns exceed £2,300; good profits; large shop and house; rent £80; on lease; heavily stocked; price £1,500.

6.—LIVERPOOL.—Good-class City Business, returning about £1,500 under manager; plenty of scope; handsomely-fitted pharmacy; long lease; price £850; worth attention.
7.—CUMBERLAND.—Mixed Country Retail, with Wines and Spirits; returns £2,160. increasine; net profit £650; nice house; no opposition; price, with property, £2,585, or offer.

8.—LONDON, N.—Sound Cash Retail, in main road position; returns £1,300; good Panel; net profit £450; low rent; house attached; price £850; recommended.

9.—LONDON, S.E.—Old-established Light Retail and Dispensing, with Optics; returns over £1,400; net profit £372; books audited; main road position; good shop; owner retiring; price STOCKTAKING VALUATIONS.

We are prepared to undertake this work at special low rates and invite early applications; we are now booking dates for onwards.

Estab. 1870. Telephone: Terminus 3574.

# THE ASSOCIATION OF MANEG CHEMISTS. LTD.

# **BUSINESS AGENCY, TRANSFER AND** VALUATION DEPARTMENT.

Head Offices-Kimberley House, Holborn Viaduct, London E.C.1 (and at 2 Bixteth Street, Liverpool).

# PARKIN S. BOOTH, Valuer.

'Phone: City 1261-2-3.

#### BUSINESSES FOR DISPOSAL.

I.-SURREY.-Chemist's business in residential district, held on lease 7, 14, 20 years, at £98 per annum. Established 4 years. Returns £26 per week. Price asked—Lease and Goodwill, £350. Fixtures and fittings, £600. Stock approximately £400. Further particulars on application.

2.-LONDON, S.E.-Acid, Drug and Chemical Business for quick disposal. Premises held on weekly tenancy at 14s. per week, returns average £25 per week. Stock and fixtures estimated at £500. Offers invited.

Stocktaking Valuations: We undertake this work at special rates and invite early applications.

We are now booking dates for August onwards.

# ERNEST J. GEORGE

CHEMISTS' VALUER AND TRANSFER AGENT

Tel: Earnest, Walsall.

# TUDOR HOUSE, WALSALL.

'Phone: Wal. 3774

# Quotations for Stocktaking or for Pricing Chemists' Own Stock Records Supplied on Application

(CI) £10,000 Turnover in Retail Pharmacy. — Owing to contemplated retirement, an old-established city pharmacy with high-class connections and usual distinctive features, may shortly be available for sale by private treaty; the premises occupy a commanding site in one of the leading business thoroughfares, and are held on lease the result commensate with returns and position. The proposition

available for sale by private treaty; the premises occupy a commanding site in one of the leading business thoroughfares, and are held on lease at a rental commensurate with returns and position. The proposition offers unique opportunity for a "live" man, or for a partnership; capital requirements will approximate £8,000-£8,500, and pharmacists personally interested are invited to write in confidence for initial information; reference to Bankers should also be given.

(C2) HARDY COUNTRY.—Good retail and dispensing business in important holiday and touring centre; delightful surroundings; business only opened 11 months, and doing £25-£30 weekly; most attractive lock-up shop, newly fitted by Maws; living accommodation can be arranged nearby; lease at £75 per annum. Stock and Fittings approx. £500; for quick sale, £600 accepted as owner is returning to South Africa for health reasons. This business has been visited and particulars verified.

(C3) SOUTH WALES.—Good retail and dispensing business prominently situated in small market towa midway between Cardiff and Swansea; returns record steady increase for last three years; turnover for 1930-31 exceeded £1,800; net profits £400; genuine reasons for disposing; purchase price approx. £1,250.

(C4) LINCOLNSHIRE.—Retail and dispensing business showing returns of approximately £2,250 per annum; rent, £110; lease, 12½ years unexpired; further particulars on application.

(C5) HEREFORDSHIRE.—Old-established family and dispensing business; average turnover approximately £3,200 per annum; rent, £110; lease, 12½ years unexpired; further particulars on application.

(C5) HEREFORDSHIRE.—Old-established family and dispensing business; average turnover approximately £3,200 per annum; rent £100 on lease; situated in busy thoroughfare and within easy reach of growing residential district (visited and verified).

(C6) SUFFOLK (POPULAR SEASIDE RESORT).—Two businesses, pharmaceutical and high-class confectionery respectively, available for disposal on account of contemplated retirement; modern dwelling house with garden and private entrance; extensive scope for increase, particularly as regards the chemists' business; average total returns for past three years approx. £2,300 per annum; reasonable purchase price; exceptional opportunity in cases where facilities exist for running both concerns jointly.

(C7) NORTH MIDLANDS.—Unopposed retail and dispensing business in small country town; turnover approximately £45 weekly; geod living accommodation; average net profits for past three years exceed £450 per annum; rent, £57 on lease; visited, verified and recommended.

(C8) SOUTH DEVON.—Good retail and dispensing business showing returns of approximately £1,800 per annum; owner's special proprietaries, for which there is considerable demand locally, form a marked feature, there is also scope for increase generally, under personal proprietorship; the business and property may be acquired on reasonable terms, further particulars of which will be supplied upon application. (C9) DORSET.—Good retail and dispensing business situated in main street of small country town; present returns £25 to £30 weekly; rent, £72 on lease; purchase price approximately £600.

(C10) £400 ALL AT.—Pharmacy well situated in busy thoroughfare of Midlands City; present returns approximately £35 weekly under management; well capable of increase to £60 or £70; exceptional opportunity for chemist with foresight and initiative, to whom the business is well recommended.

(C11) BIRMINGHAM.—Retail and dispensing business doing approximately £1,350 per annum; net profits exceed £300; main road situation; double-fronted shop; well stocked and fitted; moderate rental on lease; reasonable purchase price; investigated, valued, and recommended.

(C12) YORKSHIRE (WEST RIDING)—Established pharmacy, neglected, but possessing undoubted scope, available for disposal at valuation of stock and fixtures only; the property may be acquired at a low figure, or a lease might be arranged at an agreed rental; present takings approximately £25 weekly, but these figures could be increased considerably in a short time under personal proprietorship or adequate management; special circumstances necessitate a quick sale; the business, however, is a sound one and constitutes an exceptionally good investment, as the possibilities are well apparent (investigated and recommended).

(C13) LIVERPOOL.—Good family retail and dispensing business

good investment, as the possibilities are well apparent (investigated and recommended).

(C13) LIVERPOOL.—Good family retail and dispensing business with wholesale connection (optional); total returns for 1929-30 financial year exceed £2,300; present year's accounts at present in course of preparation; living accommodation (5 rooms) on premises; rent, £80; lease by arrangement; main road situation; middle-class neighbourhood; little unemployment; reasonable purchase price (visited and verified).

(C14) SOUTH-EAST COUNTIES.—Old-established wholesale business with extensive connection in toilet requisites, proprietary preparations, etc.; turnover exceeds £7,000 per annum; reason for disposal owing to contemplated retirement; audited accounts available; all facilities for investigation granted to bona fide prospective purchasers, and further particulars will be forwarded on receipt of bankers' or other satisfactory references. or other satisfactory references.

JOHN BRIERLEY, F.N.A.A. CHEMISTS' VALUER AND TRANSFER AGENT, 135 Queen Street, Newton Heath, MANCHESTER Sound businesses required, returning £1,500 p.a. (up to any amount) Cash buyers waiting

"Personal attention to all matters." ("Phone: Failsworth 1913)

# BUSINESSES FOR DISPOSAL.

PIRMINGHAM (near).—Old-established Pharmacy in working-class district, six miles from city centre; main road; very profitable Cash Business; low expenses; present hands ten years; turnover averages approximately £1,500; large N.H.I.; good house attached; first-class Dispensary; Wine Licence; price approximately £850; premises can also be purchased (about £500). 8/36, Office of this Paper.

BRIGHTON.-£950 inclusive; modern double-fronted shop, in busy main road; central; takings steadily improving for last two years; opportunity for much greater increase yet; now making £6 a week net; provides an unusual opportunity to acquire a growing business of great scope; value of stock and fittings about £750. 7/37, Office of this Paper.

CENTRAL LANCASHIRE.—An old-established, middle-class. Chemist Business, situated in busy thoroughfare; lock-up shop; lease granted; rent £70 yearly; takings over £20 weekly purchaser can buy what fittings he requires at half cost, also any quantity of stock at cost; owner wishes to retire. 5/18 Office of this Paper.

CLERKENWELL, E.C.—Old-established Business in market street; N.H.I. and Counter average takings (4 years) \$22,000 per annum; thickly populated district; 10 years' lease to run; rent £100; sub-let £39; under female management; good running stock; £1,600. Write "F.," 9 Hale Park Terrace,

DEVONSHIRE.—An old-established Business for Sale in pleasant country town; rates £22; lease 7 or 14 years; 10-roomed house, with garage and outbuildings and garden; price £1,500, including stock and fixtures. Apply "M. L. D.," 4/51, Office of this Paper.

LONDON, S.W.—Profitable Light Retail and Dispensing Business; Kodak Agency; small amount of N.H.I.; residential district; good Prescribing; excellent opportunity for Optics; ill-health reason for disposal; long lease; side entrance and garden; price, lease, fixtures and goodwill, £350; stock at valuation, under £350. 5/5, Office of this Paper.

I ONDON, E.—Nicely fitted lock-up Business, double-fronted, main road; good locality; average profits about £10 weekly under unregistered management; splendid opening for qualified man doing N.H.I.; adjacent to three doctors; no opposition; good clean stock; price £850, or nearest offer. Apply 7/8, Office

LONDON, S.E.—Profitable Light Retail Business, with Kodak Agency and small amount of N.H.I.; returns average over £1,500 per annum; rent £60; part sub-let at 23s. per week; price £875; good opportunity for an energetic beginner. Further particulars on application. 6/59, Office of this Paper.

PRESTON. — Newly-established Chemist's Business; lock-up shop; main street; low rent and rates; good reason for selling; price asked, stock, fixtures and fittings, about £550. Dunn, 1 Queen's Buildings, Fishergate, Preston, Lance.

PLYMOUTH.—Very old-established Business of the late H. Roper, Ebrington Street; lease 13 years; Private Dispensing, extensive N.H.I., Kodak, Wines; Optics inquired for; ill-health; excellent position; under management; living accommodation; must be disposed of. All particulars Mr. Morrell, 21 Gleuhurst Road, Mannamead, Plymouth.

OUTH COAST.—Drug Store; newly opened; small returns, but steadily increasing; qualified man could double; good position in thickly populated district; no near opposition; well placed for N.H.I. and Optical; small shop with living accommodation in busy main road; a rare opportunity, which first reasonable cash offer secures. 5/29, Office of this Paper.

SOUTH DEVON.—Unopposed Business, established 7 years, in growing district; returns £1,120, increasing; living accommodation, with side entrance, is six rooms and bathroom; also stone built large garage; low rates; cheap gas, main water, main drains; price for business and fixtures £500; s.a.v., about £250; vendor wishes sell freehold or let at reasonable rent. 9/5, Office of this Paper.

# S.F. CLARK, F.N.A.A. Richmond 2210 CHEMISTS' VALUER and TRANSFER AGENT

34 Marksbury Avenue., Richmond, Surrey. Personal attention and absolute privacy guaranteed in the matters of Stock Valuation and Accountancy, Sale or Purchase of Business, Partnerships, Company Flotation.

Lowest inclusive fees quoted.

SUTTON (Surrey).—Small Pharmacy; established 9 months; takings £10 weekly, increasing; lock-up shop; rent £90 per annum, inclusive; Kodak and N.H.I.; no opposition, owner anxious to sell owing to ill-health; low price for quick sale; genuine offer wanted. 5/2, Office of this Paper.

POR' Sale, high-class Chemist's Business, situate main thoroughfare Eastern Scottish town; turnover £9,300; principals only. Address "Chemist," Wm. Porteous & Co., Advertising Agents, Glasgow.

GOOD-CLASS, up-to-date, lock-up Pharmacy for Sale; returns £1,400 (at good prices); rapidly increasing; big town near London; no serious opposition; good lease; Kodak, Wines, N.H.I.; part payment considered; best offer secures. 7/12, Office of this Paper.

COOD-CLASS Retail and Dispensing Business, main road, suburban; returns £2,200; house attached; moderate rent; 17 years' lease to run; well stocked; price about £1,400; inspection invited to genuine cash buyers only. P.C.B. 2/1, Office of this Paper

PHARMACY for Sale; sunny East Coast resort; select position; best part of town; all cash trade; well fitted; splendid living accommodation of six rooms and bath; qualified man urgently needed; no opposition; vendor must get out in openair owing to symptoms developing from war wounds; no reasonable offer refused; snip for live man. 8/6, Office of this Paper.

RECENTLY opened Pharmacy in good position; well stocked and ready for N.H.I., scripts being refused; active Chemist by attention can increase returns at once; lock-up shop; low rent; Scuth London suburb; £250. Address "Qualified," P.C.B. 2/3, Office of this Paper.

£350 BUSINESS for Sale; no opposition near; rent ticulars given. "Rad," 7/17, Office of this Paper.

# BUSINESSES WANTED.

PERDOE & FISH are in urgent need of sound Businesses in all parts; cash buyers with capital up to £3,000 waiting to take immediate possession; correspondence from intending venders cordially invited; quick sales negotiated privately. Transfer Offices, 41 Argyle Square, King's Cross, W.C.1. 'Phone: Terminus 3574.

BRIGHTON (20 miles' radius).—Pharmacist, with ready cash available, requires sound, progressive Business; turnover not less than £2,000 per annum; good house essential; must bear strictest investigation; genuine concern; banker's reference. Replies treated in strict confidence. 5/31, Office of this

CHEMIST Shop in London, with turnover about £2,000-£3,000, required; neglected business would be entertained. Apply 8/31, Office of this Paper.

DESIRED to acquire Pharmacy situate in main road, London or suburbs. Particulars to P.C.B. 2/9, Office of this Paper.

MANCHESTER.—Required at once, sound Chemist Business; cash waiting for established business in well-populated neighbourhood doing good turnover; would consider proposition in Liverpool or Lancashire generally. Full particulars, which will be treated with all confidence, to "Pharmacist," 8 Craigwell Road, Prestwich, near Manchester. Telephone: Collyburst 2655.

WANTED, in London suburban district, sound, progressive Cash Retail Business, with accommodation; turnover about £35 weekly; a genuine inquiry. Replies treated in strict confidence. P.C.B. 1/34, Office of this Paper.

WEST RIDING OF YORKSHIRE:—Pharmacist with ready cash available requires sound progressive business with minimum turnover of £2,000; must be profitable and stand every investigation; quick transaction for suitable proposition; would consider partnership in large concern where ability, hard work and capital could be used to advantage; bankers' and solicitors' references; all replies treated in strictest confidence. 8/9, Office of this Paper.

# AGENCIES.

COMMISSION Agents, calling on Dental Profession, wanted to sell Galosthetics, "Cocaine," "Non-cocaine," etc., in districts London, N., N.E., S.E., E.; England, North, Liverpeol, Cheshire (part); Lancashire, Manchester, part Lancashire; Birmingham, North Wales, East Coast, South Coast; Scotland, West and East, North, Ireland. Apply Gall, Chemist, Fraserburgh, Scotland Scotland.

THIS advertisement will appeal strongly to those Manufacturers who are not satisfied with their present returns from the North of England. Two virile, enthusiastic and expert Salesmen, possessing some 4,500 first class accounts amongst Chemists and large Stores and having Manchester Offices, are prepared to consider the Sole Buying Agency of any really good line; alternatively they would undertake the marketing of any Proprietary or other attractive product. Write in first instance to "Distribution," 47 Park Avenue, Cheadle Hulme, Cheshire.

WANTED, Agen's, calling on Chemists in all districts, to sell good line already creating great demand; remuneration is by commission only, which is on a very generous scale. Please state ground covered and full particulars (in confidence) to 6/13, Office of this Paper.

## FINANCIAL.

EXCEPTIONAL opportunity for young man with chemical training to replace Managing Director in a well-known private limited company of Drug and Chemical Packers and Manufacturers of valuable Proprietary Preparations; sole control and practically all the shares; good premises, valuable lease, and stock; price £5,000; two-thirds can remain. (Established ever quarter of a century.) 5/39, Office of this Paper.

# PREMISES FOR SALE.

CHEMIST is wanted in the following districts: Uxbridge, Hayes, Egham; excellent Premises for Sale suitable: full particulars and price of freehold sent on application. Buer, Owners' Agent, 75 Walford Road, Uxbridge.

CROYDON.—New Premises in best position on main road; no opposition; expensively fitted with show cases and most suitable for high-class Chemist; splendid living accommodation; 18 years' lease or 68 years leasehold at moderate rent. Call 45 Sonth End, Croydon. Fairfield 5889.

KINGSTON (near).—Shop and good living accommodation; at present Domestic Stores with large sale for Proprietary Medicines; exceptional opportunity for qualified man to develop into really profitable Chemist Business; rapidly growing goodelass residential district; long ground lease. For full particulars write "P.," 34 Cobham Read, Kingston Hill, Surrey.

## APPRENTICES.

A PPRENTICESHIP required for tall young man; pas Part I. J. Kaye, 23 Tredegar Square, Mile End, E.3.

DISPENSER, College and Hospital trained, requires Retail Apprenticeship. Please reply 5/38, Office of this Paper.

# APARTMENTS.

RESIDENTIAL CLUB FOR GENTLEMEN.

HAMPDEN CLUB, Hampden Street, N.W.1, close to King's Cross Station. Large club rooms. 300 bedrooms and bed-sitting rooms. 15s. to 25s. per week. Illustrated Prospectus, Secretary. Museum

We desire particularly to draw the attention of Colonial and Foreign Subscribers to the fact that in cases where they require partners, agents or assistants, or wish to sell their businesses, an Advertisement in this Supplement, placed in every copy of "The Chemist and Druggist," should be the readiest means of helping them to attain their object. The tariff for such announcements is given under the appropriate headings in the Supplement. Instructions and remittances can be sent to us direct or through the advertisers' correspondents in this country.

# SHOPS TO LET

NOTICE.—Several good premises to let for Chemists, Photo's, Fancy Goods, Hardware & General Chemists NTWOOD, LEIGH, WESTCLIFF, HERTFIELD, AND HERNE BAY. BRENTWOOD, SOUTHEND,

A. R., 252 Station Rd., Colonade, Westcliff-on-Sea

# PREMISES TO LET.

COMMODIOUS Premises to Let, now occupied by old-established Retail Chemists, situated in centre of town, one minute from Market Place in main street of Mansfield, Notts; excellent opportunity for multiple firm not represented in town. Apply for further particulars to 5/28, Office of this Paper.

DENTISTS.—Excellent opportunity over Chemist; commanding corner; upper part to Let, seven rooms, two floors, bath, etc.; side door; moderate rent; main road; near Shepherd's Bush Green, W.12. 6/55, Office of this Paper.

MATLOCK.—To Let, large lock-up corner shop; three show windows; frontage 54 ft.; main road; suitable for chemist; electric, gas and water laid; uo opposition; busy thoroughter; moderate rent. Apply Geo. Woodland, The Green, Matlock,

TO LET.—Shop in the centre of Colne, Lancashire; occupied by chemist for nearly 35 years. Apply Holgate & Spivey, Architects, Colne.

## SITUATIONS OPEN.

#### RETAIL (HOME).

BUXTON—Lady Assistant for modern Family business; smart Counter-hand, good Window-dresser, and accurate Dispenser essential. State age, experience, when at liberty to 190/733,

CAMERIDGESHIRE.—Qualified Assistant rmale), aged about 30, wanted for good-class business; experienced all branches, including Photography; good Window-dresser; preference given to man secking sound permanency. State age, height, salary required (outdoors), and submit photo with two recent references. 6/10, Office of this Paper.

CHELTENHAM.—Experienced, unqualified Assistant wanted.
Send full particulars, with photo, to Neathercoat, 50 Wigmore Street, London, W.

COLDERS GREEN.—Wanted. September 21, young, unqualified Assistant (male, outdoors) for high-class Dispensing business. Apply, stating previous experience, references, age, height, and salary required; enclose photo if available, Applicants not replied to in 7 days please treat as declined. 6/6, Office of this Paper.

EEDS.—Assistant (male); qualification not essential. State-age, height, experience and salary required, with ecpies of any references. Applications treated in strict confidence, and those unanswered within five days respectfully declined. 8/11, Office of this Paper.

LONDON, N.W.—Wanted, immediately, young, experienced, qualified male Assistant for N.H.I, and Private Dispensing, Window-dressing, Prescribing, and Counter. Full particulars, including salary required, to 6/12, Oface of this Paper.

L ONDON, E.-Unqualified Assistant, about 25; good Window-dresser, Dispenser, and Salesman. Full particulars and salary required to "G. S.," 117 High Street North, East Ham.

MIDLANDS.—Smart, qualified Manager required for modern Agricultural business; house attached; must be good Window-dresser and keen Salesman; good prospects. Give full particulars of age, previous experience, and when free to 190/734, Office of this Paper.

A SSISTANT, unqualified, mainly for D. & P. work, until October 17. Give references, experience, etc., and state salary required (outdoors). Swale, Chemist, Ilkley, Yorks.

BOOK-KEEPER (male) required by a small Multiple Retail Chemist's Business in North London; one used to General Book-keeping and with a knowledge of Shorthand and Typing preferred. Apply, giving age and salary, to 7/26, Office of this Paper.

DISPENSER.—Gentleman required in Private Surgery in London; Junior entertained; previous experience not essential; must be quick and reliable; wages £3. Address, with full particulars, 6/15, Office of this Paper.

ISPENSER and Book-keeper wanted, August 28; outdoors; age 25-35; state experience and salary required; hours, eck-days 9-11 a.m., 2 p.m., and 6-7-30 p.m., except Tnesday enings, Sundays 10-11 a.m. and 2 p.m.; usual surgery duties; ree weeks' holiday; one that requires a permanency; personal terview if possible. State qualifications and enclose copies of stimonials to Dr. Bletchly, "Hazelwood," Nailsworth, loncestershire.

TLDERLY Qualified Man required; bachelor or widower preferred; short hours; light duties. Apply, with full particurs and salary required, to 7/18, Office of this Paper.

TURTHER applications are invited for post (advertised 25th July) of Manager for new Branch in Sussex; applicants ust be qualified and have first-class references; preference ven to married man with Optical qualification; good salary in living accommodation. Fullest particulars and photograph 7/23, Office of this Paper.

UNIOR Assistant (unqualified man) required from August 27 (or nearest date). H. Reynolds, 9 Becket Buildings, orthing.

UNIOR Assistant who is a neat, quick and accurate Dispenser. Apply, giving full particulars, saying salary quired and enclosing photograph. Time allowed for study if quired. G. Elliott & Son, Pharmaceutical Chemists, Walsall.

ADY Assistant for Counter. State experience, wages and if disengaged. Herbert's Drug Stores, 207 & 209 Vauxhall ridge Road, S.W.1.

OCUMS.—Qualified Manager and unqualified Junior required:
I qualified for September 7-September 17 inclusive, unquadid August 29-September 5 inclusive. Apply, with references terms, to Hurst, 105 Woodbouse Street, Leeds. Replies nanewered 3 days respectfully declined.

OCUM, qualified, required for Walsall; August 24 to September 5 inclusive. Reply, stating age, height, experiece, references, and salary required, to 4/37, Office of this ager.

OCUM wanted, lady or gentleman, qualified, August 24 to September 6. Terms and references to Bennett, 7 Approach oad, E.2.

OCUM, young, unqualified, required for three or four weeks from August 31. Please give full particulars in first tter. J. E. Booth, M.P.S., Farnborough Road, N. Farnrough, Hants.

OCUM, qualified, required at once for London, W.1, for three weeks; age about 30. State full particulars, age, muneration; to 8/16, Office of this Paper.

ANAGER, age 35-40 years, single; must have had managerial experience; excellent opportunity for a man with ergy, initative; salary and commission; references must stand flest investigation. Apply 9/10, Office of this Paper.

DATENT MEDICINES.—Lewis's, Ltd., Birmingham, require immediately a first sales for this department (female). oplicant should be a qualified Dispenser and be of good opearance, personality and address, age 23 to 27. Apply in the first instance, stating qualifications, height and age, to Staff anager, enclosing photograph, which will be returned.

UALIFIED Manager (married) for a busy suburban business in rapidly developing neighbourhood; keen Salesman and nart Window-dresser essential; convenient house attached; cellent prospects; salary and commission. Full details of revious experience, age, salary required, and when at liberty 190/735, Office of this Paper.

UALIFIED Manager (married) required to open a new branch; preferred young; must be keen with Photography of good Window-dresser; salary £4 per week, with house and mmission. 5/33, Office of this Paper.

UALIFIED Locum required for Pharmacy, September 14 to 26. State terms, etc. 190/737, Office of this Paper.

EQUIRED immediately, Qualified Chemist as Manager for Branch. Apply, giving full particulars, salary, etc., to iles & Sons, 110 Commercial Road, Newport, Mon.

USHTONS (CHEMISTS), LTD., 128 Southbank Road, Southport, require qualified man as Branch Manager; accusmed to good-clase Dispensing and Photography; preference ven to a man with knowledge of Optics. Apply, by letter only, ating salary required, but positively no enclosures.

MART young lady of good address and appearance, preferably qualified, for country town easy reach of London, itely for Toilets and Windows. Give full particulars of experience, salary required, etc. Early September. 7/4, Office of this aper.

TAYLORS CASH CHEMISTS have vacancies for young lady Assistants, required for London suburbs, with Hall qualification preferred and knowledge of Retail. Application by letter only, giving details of experience, age, and wage expected, to 55 Pall Mall, London, S.W.1.

TRUSSFITTER. — Salesman and Saleswoman wanted for provinces; must be fully experienced, and have knowledge of fitting all types of Surgical Appliances, Belts, Hosiery, etc. State age, wages and previous experience to P.C.B. 1/32, Office of this Paper.

TWO Juniors (male), one for Eastbourne, one for Heathfield; good Dispensing. Counter and Photographic. State age and salary; photograph if possible. A. Procter & Son, Ltd., Station Parade, Eastbourne.

UNQUALIFIED unmarried male Assistant required early in September, must be thoroughly experienced in Window-dressing and courteous Counterman, for an up-to-date pharmacy; age not over 25; good salary. Enclose photograph and references to Gordon Morum, The Arcade, Guernsey.

UNQUALIFIED Junior; thoroughly trained; good Dispensing experience essential; smart appearance. W. George's, Ltd., Burnt Ash Road, Lee Green, S.E.12.

VACANCY for qualified male Assistant (26); progressive post for all-round man; permanent. Prosser Roberts, Pharmaceutical Chemist, 27 Lambeth Walk, S.E.

WANTED, September 7, Managing Assistant, qualified, for winter period; permanency probable. Full particulars in first letter. Reply guaranteed. Smith, Langley, Birmingham.

WANTED, immediately, Junior or Improver. Fortnam, Chemist, Ledbury, Herefordshire.

WANTED immediately, qualified lady Assistant and an unqualified gentlenian Assistant for Dispensing and Counter. Apply personally to Lord & Co., Chemists, 547 Barking Road, Flaistow. E.13.

WANTED immediately, an Assistant, outdoor, mainly for N.H.I. Dispensing; must have had considerable experience and be a quick and accurate Dispenser; age about 30; qualified preferred. In applying state usual particulars to D. Davies & Co., 344 Caledonian Road, N.1.

WANTED immediately, unqualified Assistant, with recent good Dispensing and Counter experience; age 20 to 25. Also qualified Assistant for August 31, with thorough knowledge of good-class business and Window-dressing; age 25 to 50. Fullest particulars in first letter as to age, height, experience, salary, photo. Applications not answered in four days respectfully declined. H. L. Gerry, Chemist, Chester.

WANTED, immediately, Assistant, male or female, solely for D. & P. work; in or outdoors. Give full particulars, salary required, and references to Victor Sadler, Photographic Chemist, The Parade, Minchead, Somerset.

#### WHOLESALE.

OUTH COAST.—An old-established, competitive Perfumery House desires a Representative carrying a non-competing range of goods; remuneration on a liberal commission basis only; applicants must be covering the ground regularly by car. 190/738, Office of this Paper.

A N energetic Representative, with connection amongst Chemists on Merseyside, is required by an old-established firm on commission basis with small salary; applicant must be in a position to start immediately. Write, giving full particulars of previous employment and enclosing copies of testimonials, in the first instance to Box 279, W. H. Smith & Son, Ltd., Strand House, London, W.C.2.

A SSISTANT Sales Manager required by established, progressive company marketing own branded goods and sales agents for leading firms; commencing salary £200 and bonus on turnover; investment required of £350; exceptional opening, prospects, and scope for an ambitious young man. Write fully 6/11, Office of this Paper.

BUYER of Druggists' Sundries and Patent Medicines wanted by Wholesale House; must have had experience and know both English and Continental makers of Druggists' Sundries. Send fullest particulars of experience (which will be treated strictly confidentially), age, and salary required to Brook, Parker & Co., Ltd., Ashfield, Horton Road, Bradford.

CHEMIST, age about 35, for production and get-up, Preprietaries Department; permanency; would snit man from Retail. Apply, stating salary and when disengaged, Raybould, Whitehouse & Co., Ltd., Wholesale Druggists, Dudley. (Est. 1878.)

REPRESENTATIVE wanted, Hairdressers' Supplies, Fancy Articles; good commission; whole or part time; must have own car. Superfloro, Ltd., P.O. Buildings, Charles Street, Haymarket, S.W.L.

TRAVELLER. London district; Retail experience essential; generous commission; splendid opportunity for unqualified man. Apply "Everyday Household Remedies," 301 Wandsworth Bridge Road, Fulham, S.W.6. 'Phone: Fulham 3292.

TWO Representatives required by well-known nationally advertised proprietaries manufacturing company, (1) South Wales, (2) Lincolnshire; established connections necessary; must be experienced, keen, energetic, and hard workers. State full particulars, age, experience, and salary required. 190/736, Office of this Paper.

WYLEYS, LTD., require Representative for London and suburbs. Apply, giving full details of age, qualifications, salary, etc., to Wyleys, Ltd., Coventry.

# SITUATIONS WANTED.

#### RETAIL (HOME).

2s. for 18 words or less, 6d. for every additional 10 words or less, prepaid. (Box No., 1s. extra.)

A.A.A. A. REFERRED Forensic; Assistant; 23; 6 ft.; keen, conscientious; 7 years' experience; well recommended; disengaged; Locum or permanency; anywhere. Harold Ford, 14 Church Street, Oakham, Rutland.

A.A.A.A.—PHARMACIST, 25, single, high-class training, every experience, having just completed 12 months' Locum work, also Dispenser (prizeman) in Hospitals, desires position as Manager or Senior in Retail or Wholesale firm having good future prospects; willing to invest later if satisfactory, or would consider representing firm; own car; every reference available; disengaged September 12; South or South-West district preferred. Reply 7/19, Office of this Paper.

A.A.A.-ASSISTANT; 32; first-class Salesman-Dispenser; 17 years' good all-round experience; last 10 West End; trustworthy; reliable; excellent references. "Cyanide," 8/29, Office of this Paper.

A.A. -Locum or permanency; Dispensing, Counter, Windows, Prescribing, Photography; free August 23. Harries, 8 Tradescant Road, S.W.8.

 $A.A. \stackrel{-{\rm SMART\ young\ Assistant,\ Dispenser,\ Salesman,\ Stock,}}{{\rm desires\ change.\ Details,\ "Advertiser,"\ Holly\ House,}}$  Wotton under Edge, Gloucester.

A.A.—ASSISTANT, 38, unqualified, 20 years in good-class Dispensing business, desires situation; Locum or permanency; free September 30; first-class references. "Phenazone," c/o Mr. Sheppherd, 4 Murina Avenue, Bognor Regis.

A.A.—ADVERTISER; 41; unqualified; 5 ft. 8 in.; permanency, Locum, emergency; well recommended; abstainer; disengaged. Alexander, 189 Southampton Street, S.E.5.

A QUALIFIED Chemist, 24, 7 years' high-class experience, desires post, preferably in Midlands; energetic, trustworthy, and capable; free August 31. Chalmers, 37 St. George's Road, Ramsgate.

A QUALIFIED young man requires position; Locum or permanency; free from August 15; experienced all branches of Pharmacy; highest references; London preferred. "Chemist," 40 Lansdowne Gardens, Stockwell, S.W.9.

A QUALIFIED lady, 23, desires position in good-class pharmacy; London or suburbs. "H. D.," 1 Hopefield Avenue, Brondesbury Park, N.W.6.

A COMPETENT Unqualified Male Assistant, 27, desires change; permanency; Dispensing, Counter, Windows, etc., excellent references; London only. 7/30, Office of this Paper.

A THOROUGHLY competent qualified man desires Locum, August 24-September 10; excellent references. Forrest, 68 Grafton Road, Acton, W.3.

A POTHECARIES' Hall; lady; capable Dispenser, Bookkeeper; Hospital, Doctors, Chemists experience; permanency, Locum. "Dispenser," St. Bartholomew's Hospital,

A SSISTANT; unqualified; 23; experienced Dispensing, Counter, Photography and Window-dressing; height 6 ft.; London or suburbs preferred; disengaged August 29. Wheatcroft, "Crescent View," Hall Bank, Buxton, Derbyshire.

A SSISTANT; tall; unqualified; 30 years' experience, Dispensing, Counter, Photography; disengaged, Harris, 24 Link Road, Edgbaston, Birmingham.

A SSISTANT, 36 (Part I); permanency or Locum; Dispensin Counter, Photography; abstainer; good reference Williams, 20 Norton Street, Knighton, Radnorshire.

A SSISTANT; unqualified; middle-aged; all-round experienc capable and reliable Dispenser; moderate salary; diengaged. "W.," 93 Calbourne Road, Balham, S.W.12.

A SSISTANT, 21 (Part I); tall; Dispensing, Counter, etc Locum or permanent; free 17th. Bougourd, 22 Trinit Square, S.E.1.

A SSISTANT; unqualified; 27; married; 12 years' first-clar experience; permanency. Pearce, 30 Station Road, Llanel; Carm.

A SSISTANT, unqualified, 31, seeks responsible position; got in. Dispensor and Salesman; excellent references; last point years; disengaged when suited; reliable. G. A. Fricke High Street, Epsom, Surrey.

A SSISTANT, 23, requires situation; excellent West-Engraphy, etc; good appearance; disengaged. 8/32, Office of the Paper.

CAPABLE, experienced, all-round Assistant and Stocktaker tall; unqualified; willing and active; permanency. Haigl 23 Doughty Street, Holborn, W.C.1.

CAPABLE Assistant; Part I; 22; good appearance; used thigh-class trade; thoroughly acquainted with all branche of pharmaceutical practice; highly recommended. Bishop 12 Dawnay Road, S.W.18.

CHEMIST: qualified; Wholesale or Retail; reliable worker first-class experience; Locums or permanency. Prestor Oldcastle Avenue, Withington, Manchester.

CHEMIST and Druggist; 48; single; high-class provincial and West-End experience; references good. 27 Ken Road, Chiswick.

CHEMIST'S Assistant, 24, F.S.M.C., taking J.C.Q.O. October desires post with Chemist-Optician; excellent experience H. N. Foote, 43 Rectory Road, Salisbury, Wilts.

COMPETENT, experienced Assistant; unqualified; Publi School; town or country; 26; height 6 ft.; active americatic; recommended as honest, sober, reliable. Flatman 75 Edward Road, Erdington, Birmingham.

DISENGAGED.—Locum, part time; competent; thoroughly experienced; active; moderate terms. "Chemicus," statement of the competent of the competence of the competency of the com

DISPENSER, male, 42, desires post with Doctor; good appear ance; tall; active; highest references, extending over 18 years; at liberty; free go any district; moderate salary for goor permanent post. "Dispenser," c/o 120 Aireville Road, Frizing hall, Yorks.

DISPENSER (Hall) seeks post with Doctor in or near London immediately; excellent references; will do Locum any where. 5/37, Office of this Paper.

Efficient and reliable Pharmacist, age 23, well-experience, Dispenser, tactful and persuasive Salesman, seeks situation 7/20, Office of this Paper.

HAVING had 8 years' well-chosen experience, advertise desires engagement at the beginning of September with good immediate prospects: qualified; 25; tall; good worker London district preferred. P.C.B. 2/2, Office of this Paper.

JUNIOR; 20; good Dispensing and Counter experience, with Photography; passed Part I, also F.S.M.C. and F.B.O.A Jenkins, 173 Bute Street, Treherbert, Glam.

JUNIOR; 20; tall; Manchester district; well trained; Windows Counter, Photography, Stock-keeping, Dispensing. Horsfall Salem Buildings, Hebden Bridge.

LADY Dispenser (Hall) requires post, Chemist, Doctor of Institution; 7 years' excellent experience, Dispensing, Book keeping, Counter, etc.; London or provinces. "J. S. H.," 25 Sisters Avenue, Clapham Common, S.W.11.

LADY; 24; Locum or permanent position required; good Dispensing and general experience. "D.," 14 Tennysor Avenue, Twickenham, Middlesex.

LADY Assistant desires permanent post; unqualified; 8 years excellent all-round Dispensing. Counter, Photographic experience; disengaged early September. 8/22, Office of this Paper.

LOCUM, qualified (also Optics), free from August 15; near London preferred; abstainer; experienced; personal references. Apply 5/35, Office of this Paper.

LOCUM; qualified: 27; London and South experience; free now. 193/39, Office of this Paper.

LOCUM; unqualified; capable of management: West-End experience; London or suburbs; disengaged August 24 to September 5. "C.," 14 Leinster Avenue, East Sheen, S.W.14.

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OCUM; qualified; Lancashire district preferred; free now until September 5. Mullineaux, 2 Daggers Hall Lane, acknool.

OCUM; Qualified Pharmacist and Optician; keen, capable, I conscientious; vacant dates, August 15 to September 19; gistered J.C.Q.O.; abstainer. Ellis, c/o Mrs. Blackburn, Inver Ha, Quarry Hill, Tonbridge.

OCUM; qualified; lady, Square trained; experienced Hospital, Retail; free September 5; London only. Phillips, Scutari Road, East Dulwich, S.E.22.

OCUM; qualified; experienced; registered R.P.U.; free week commencing August 23. "Chemist," 236 Stafford Road, /allington, Surrey.

OCUM or Management Drug Stores; unqualified; over twenty years in own business; abstainer. F. Jones, 7 Persehouse Street, Walsall.

OCUM, qualified. 33, as Manager or Assistant; good allround experience. "Chemist," 22 Edith Street, Faversham, ent.

OCUM; qualified; 33; free September 20 to October 3; 7 years as Manager since qualifying. 7/27, Office of this aper.

OCUM; qualified; middle-age; well recommended; active; feliable; been in own business. "H.," 2 Hill Cottages, terrynarbor, Ilfracombe, Devon.

T.P.S., 24, married, secks permanency; at present odation desirable. Sandbach, c/o Jacks, High Street, Stone, taffs.

M.P.S., F.S.M.C., F.I.O., 'passed Supplemental, also osition with Optician or Chemist-Optician; London or Kent referred. "Spectrum," 12 Kent Road, Margate.

PTICAL AND PHARMACY LOCUM.—Advertiser, 20, passed Part I and F.B.O.A. Examination (except retinoscopy), equires temporary position before taking Part II Course; excellint references and experience, Counter, Window-dressing, Disensing; tall and keen. Gill, 276 Bolton Road, Tottington, near Jury, Lancs.

PART-TIME: 12 years' City and West-End experience; Dispersing, Stock, Counter; good references; S.E. district. rowther, 18 Elm Road, Beckenham.

DHARMACIST, 33, seeks Locum work 2.5 weeks, previous to taking up foreign engagement; first-class experience; nimpeachable references; free now; London or country. P.C.B. 1/4, Office of this Paper.

UALIFIED Chemist, 7 years' high-class experience, desires post, preferably in London or Birmingham; energetic, rustworthy, and capable. J. P. Davies, Church Villas, Bromard, near Hereford.

UALIFIED, 22, high-class experience, desires Locum or permanency; available immediately. Woodings, 28 St. dary's Road, Garston, Liverpool.

UALIFIED, age 49, first-class experience, used to controlling staff, seeks position urgently; moderate salary. 5/27, Office 1 this Paper.

UALIFIED, age 27, desires position as Manager or Senior; 10 years' good provincial and London experience; London r Southern Counties. "Chemist," 8 St. Sayiour's Road, Brixton itl, London.

UALIFIED, 212, seeks permanency; free now; South Yorkshire district preferred. Jefferson, Slade Hooton, Laughton, theffield.

QUALIFIED, free, seeks Locum or permanency; varied experience, including Optics; smart; capable; first-class references. Bellhouse, 14 Sunbeam Street, Leeds.

#### NAMES AND ADDRESSES.

When sending advertisements for any of the sections in this Supplement, advertisers—as a guarantee of good faith and not necessarily for publication—should always give their names and addresses. It sometimes occurs that this rule is not followed and delay and disappointment ensues. Strict attention to this detail will be appreciated.

QUALIFIED, 23, desires cituation; South Walcs or London, S.W., preferred, but not essential; excellent references and experience; moderate salary. Lewis, 15 James Street, Port Talbot, Glam.

QUALIFIED; 22½; all-round experience; kecn; conscienticus; tall; personal reference; Locum or permanency; available immediately. Greatrex, Pentre, Rhondda.

QUALIFIED, young, requires post as Assistant or Branch Manager; sound experience of Counter and Dispensing. Weare, Bapton, Codford, Wilts.

QUALIFIED lady desires post in London; Locum or permences; interview; free. 7/6, Office of this Paper.

QUALIFIED; 23; 7 years' first-class experience; excellent references. Davey, 51b Upper Grosvenor Road, Tunbridge

QUALIFIED: 41; married; excellent experience, references; London or near; immediate; permanency. "Pharmacist," 25 Plough Road, S.E.

QUALIFIED ("Square"); 23; tall; competent; Window-dresser; Kodak course; reasonable wage for good experience. Baldwin, High Street, Barnet.

QUALIFIED; 38; highly experienced; capable managing substantial business; active; reliable; real business builder; disengaged. "D.," 88 Chapelfield, Norwich.

QUALIFIED, young, disengaged, desires permanency or locum; North preferred; five years' experience; N.H.I. and Counter; capable Window-dresser. State salary. Doyle, 16 Lancaster Place, Blackburn, Lancs.

QUALIFIED (Square trained); all-round experience; tall; smart; good Dispenser, Salesman, Window-dresser. Ashton, 33 Redesdale Street, S.W.3.

QUALIFIED Couple, young, keen and thoroughly experienced in managing (all branches), about to marry, require position, taking sole charge of a progressive nature or with view to succession; good living accommodation essential; prepared to invest £300: total return, as salary, not less than £6 10s.; highest references and unimpeachable characters; South preferred; early October. "Ms.P.S.," 321 London Read, Reading.

QUALIFIED, 28, single, has had sole charge of successful business on South Coast since opening two years ago, seeks responsible post at end of season; excellent references. 8/19, Office of this Paper.

QUALIFIED Chemist, good experience, requires permanency; Birmingham area; free September 14. 8/26, Office of this Pager.

QUALIFIED. 24, single, desires permanency; good appearance; high-class experience in all branches; free now. Wiseman, 28a Seaside, Eastbourne.

QUALIFIED; reliable; hard worker; smart; 8 years' excellent experience; West End Locums or permanency; Londonor suburbs preferred, not essential; excellent references. Evans, 29 Bridge Street, Leatherhead, Surrey.

SOUTHAMPTON.—Position wanted by young, qualified; energetic; modern business methods; free one month. 5/3, Office of this Paper.

TRUSTWORTHY Manager, 15 years' varied experience, seeks position of responsibility giving scope for advancement; tactful, energetic, fully acquainted with modern business methods; first-class references; aged 35; married. 193/36, Office of this Paper.

UNQUALIFIED male Assistant, 23 (referred Part II), requires position; London, W., S.W., or suburban; good experience in all branches. 276 Nelson Road, Whitton, Twickenham.

UNQUALIFIED Assistant, 21, used to middle-class trade; free now; local district. Holder, 18 Fitzwilliam Road, Clapham, S.W.4.

WEST OF ENGLAND.—Unqualified, 24, seeks change with scope for real ability; 4 years seaside, 2 years London; Dispensing and N.H.I., D. & P. and Counter; first-class references. 8/5, Office of this Paper.

YOUNG man, Square trained, tall, very keen, good experience, requires position with high-class Chemist in West London or Middlesex, with view to purchasing the business or becoming a Partier in about four years time. "M.P.S.." 73 Gunnersbury Avenue, Ealing.

CLEAR OUT—your Old or Damaged Stock, Photo Goods
Why keep them any longer? Turn them and OASH.

I GIVE BEST PRICES for Old Films (damaged, fogged or expired dates); Packet Papers. Cards (any sizes). Old Photo Goods or Cameras. Bromide Papers. Plates (all sizes, all makes). Send any goods in the photo line. I buy all, good or bad. Cash per return. A good price for all Cameras. Send them along.

S. E. HACKETT, 23 July Road, Liverpool

#### WHOLESALE.

A WELL-KNOWN house will recommend thoroughly successful Representative; Yorks, Lancs, Cheshire, etc., or other territory; trustworthy; reliable. 8/10, Office of this Paper.

COMMERCIAL gentleman, with 12 years' experience of the Irish trade, is open to represent a firm of manufacturers on commission; accounts already open with 90 per cent. of the Irish Chemists; business and bankers' reference on request. 4/53, Office of this Paper.

KEEN Salesman, 35, sound connection South Coast, West England, Channel Islands, thoroughly experienced, desires re-engagement; Pharmaceuticals or Toilets. 8/39, Office of this Paper.

PROGRESSIVE situation required, Wholesale or Retail representation or otherwise, by young, qualified Chemist with ambition, ability, and per-sonality; 5 years' managerial experience in Retail. 7/15, Office of this Paper.

SMART Retail Salesman desires berth, Representative or Showrooms, Toilets, Pharmaceuticals, Sundries; 28; tall; good appearance. 9 Manor Read, Wallington, Surrey.

WOMAN Chemist seeks post (scientific or administrative) where her pharmaceutical and commercial experience could be used. 6/22, Office of this Paper.

OUNG Man, 26, three years' Retail, three years' Whole-L sale, three years' travelling well-known firms, Drug Trade, teks situation, inside or out. "H.," 29 Mowson Close, West

## MISCELLANEOUS.

10s. for 60 words or less; 1s. for every additional 10 words or less, prepaid. (Box No., 1s. extra.)

A PHARMACY, fitted with reconditioned 5-ft. Showcase front Counter, 9-ft. Drugfitting with mahogany-fronted Drawers, 4-ft. mahogany Wall Showcase, 4-ft. 6-in. mahogany Dispensing Screen, drawers at back, mahogany Perfume Case and Desk, £60 the Set. Many other Sets in stock to suit any shop. Call and make your selection. Upright and Flat Counter Cases, Silent Salesmen, All-glass Counters, Display Stands, Swan-neck and Pear-shape Carboys, Recessed Label Shop Rounds, Electric Signs, Check Tills, etc., cheap. RUDDUCK & CO., 219 Old Street, London, E.C.1.

CHEMISTS' FITTINGS.—We hold an immense stock of Drug Fittings, Dispensing Screens, Glass Fronted Counters, Perfumery Cases, Nests of Drawers. Wall Cases, Silent Salesmen, Upright and Flat Counter Cases, Plate-glass Counters, Cash Tills, Display Stands and Glass Shelves, etc., ready for immediate delivery at competitive prices. Write or call for List. F. MAUND & E. BERG (SHOWCASES), LTD., 175/9 and 336 Old Street, London, E.C.1.

Price lists, trade circulars, samples, and printed matter can in no case be forwarded, the Box numbers being intended exclusively for specific answers to particular advertisements. The Publisher reserves the right to open and refuse to forward any communications received which he may consider contrary to this rule.

# Laboratory Foreman Required

An experienced and thoroughly welltrained foreman is required for a pharmaceutical laboratory. He must be up-todate in manufacturing methods in both wet and dry departments. He will be mainly occupied in compounding confidential formulæ and should be capable of organising and supervising the work of various departments. The post offers exceptional opportunities for advancement to an ambitious man whose present prospects of early promotion are somewhat uncertain. Preference will be given to applicants who have spent some years in a first-class London Wholesale Laboratory in which the work is characterised by scrupulous accuracy and high pharmaceutical ideals. Write fully in confidence, stating age, experience, and salary required, to the Managing Director, Dubarry et Cie, Goldstone Laboratories, Hove, Sussex

CHEMISTS' FITTINGS.—Complete set in mahogany Complete Drugfittings, 14 ft. long and 10 ft. long, 56 drawers; Wallcase, 8 ft. long; Serving Counter, case front, 10 ft. long; Dispensing Screen, mirror centre, 7 ft. long; two 4 ft. Nests Counter Drawers; cheap to clear; also set in polished oak Sketches by return. GEORGE COOK, The Working Shopfitte (over 40 years' experience), 27, Macclesfield Street, City Road, E.C.1.

POR Sale, complete stock, in perfect condition, of Chemist's Business, comprising Counter Scales, Dispensing Scales Mortare, Measures, Shop Rounds containing B.P. contents Ointments, all Sundries; not many Patents; suit prospective beginner; can be viewed; reasonable offer accepted for entire lot. Apply 4/6, Office of this Paper.

CILENT SALESMAN SHOWCASES.—Quantity for Sale in nearly new condition, together with big stock of Shop Fit tings, etc. Reductions suitable to times. Write for wants PHILIP JOSEPHS & SONS, LTD., 90/92 St. John Street, Clerkenwell, E.C.1. "Pharmacy Fitters for Over a Century."

COMPLETE CHEMIST FITTINGS at any price you wish to pay. We have erected in our showroom a Complete Chemist Shop with Metal Shop Front, Window Backs, Correct Window Lighting Signs and Modern Interior Fittings, 40-page Catalogue on request. D. MATTHEWS & SON, "The Liverpool Shop Fitters," 14 and 16 Manchester Street, Liverpool Fet 1946 Liverpool Shop pool. Est. 1848.

## EXCHANGE COLUMN.

#### FOR DISPOSAL.

"NATIONAL" CASH REGISTER for Sale in fine working order; total adder and ticket issuer; suit any business. Write for particulars to E. E. Walton, 149 Sirdar Road, Wood Green, N.22.

#### WANTED.

- SANDERSON HALF-PLATE FIELD CAMERA, good condition; also recent Pharmaceutical Codex. Dennis, Chemist, Northampton.
- GOWER, Chemists' Bookseller, 41 Voltaire Road, Clapham, wants Pharmaceutical Books, including B.P., Pharmaceutical Formulas, B.P.C., P.J.F., Optical Books, Materia Medica Collections.



